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1903/04

MEDICAL HALL.

City and County Hospital, St. Paul.

The University

THE UNIVERSITY OF MINNESOTA comprises the following named colleges, schools and departments:

THE GRADUATE DEPARTMENT

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, including—
the School of Analytical and Applied Chemistry

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE SCHOOL OF MINES

THE DEPARTMENT OF AGRICULTURE, including—
the College of Agriculture
the School of Agriculture
the Dairy School
the Short Course for Farmers

THE COLLEGE OF LAW

THE DEPARTMENT OF MEDICINE, including—
the College of Medicine and Surgery
the College of Homeopathic Medicine and Surgery
the College of Dentistry
the College of Pharmacy

The Regents of the University have also entrusted to their charge

THE EXPERIMENT STATION, including—
the Main Station at St. Anthony Park
the Sub-Station at Crookston
the Sub-Station at Grand Rapids

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

THE GRADUATE DEPARTMENT. In each of the colleges, except that of medicine, there are advanced courses of study leading to second degrees. These courses are open to graduates of any reputable college upon presentation of diploma.

In the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, there is a four-year course of study leading to the degree, bachelor of arts. The work of the first two years is elective within certain limitations as to the range of subjects from which the electives are to be chosen. The work of the last two years is entirely elective. The course is so elastic that it permits the student to make the general scope of the course, classical, scientific or literary, to suit the individual purpose.

The School of Analytical and Applied Chemistry, leading to the degree of bachelor of science (in chemistry), is also organized as a part of this college.

A Summer School for Teachers. A six weeks' course of instruction is offered, in various University subjects, for those whose school duties prevent them from taking the regular University courses.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical and electrical engineering leading to the degrees of civil, mechanical and electrical engineer. This college offers a four-years' course of study in science and technology leading to the degree of bachelor of science, with an additional year leading to the engineer's degree in any one of the various lines offered in the college. This college also offers graduate work leading to the degree master of science.

THE SCHOOL OF MINES offers a four-years' course of study in mining and metallurgy upon completion of which the degrees, engineer of mines, and metallurgical engineer, are conferred.

THE COLLEGE OF AGRICULTURE offers a four-years' course in agriculture. The degree of bachelor of agriculture is conferred on completion of the course.

THE SCHOOL OF AGRICULTURE offers a three-years' course of study and is a training school for practical farm life and in domestic economy. The college of agriculture is open to graduates of this school who have completed the fourth year of work required for admission to the college.

The Dairy School offers practical instruction in dairying to those who are actually engaged in the manufacture of butter and cheese.

The Short Course for Farmers is designed to be of the greatest help possible to those actually engaged in farming.

THE COLLEGE OF LAW offers a three-years' course of instruction leading to the degree of bachelor of laws. There is an evening class provided in this college. Graduate work leading to the degrees, master of laws, and doctor of civil law, is offered.

THE COLLEGE OF MEDICINE AND SURGERY and THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offer four-year courses of study of nine months each. Upon completion of either of the prescribed courses the degree doctor of medicine is conferred.

In the colleges of science, literature and the arts, of medicine and surgery and homeopathic medicine and surgery, there has been established a combined course of six years leading to the degree of bachelor of arts and doctor of medicine.

THE COLLEGE OF DENTISTRY offers a four-years' course of study of nine months each. Upon completion of the prescribed course the degree of doctor of dental surgery is conferred.

THE COLLEGE OF PHARMACY offers a two- or three-years' course of study leading to the degree of pharmaceutical chemist. This college also offers graduate work leading to the degrees, master of pharmacy, and doctor of pharmacy.

SPECIAL COURSES. In each of the colleges, students of an advanced age and adequate preparation, are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

The Board of Regents

The HON. GREENLEAF CLARK, M. A., St. Paul, - - - - 1904
President of the Board

CYRUS NORTHROP, LL. D., Minneapolis, - - - - - - - - *Ex-Officio*
The President of the University

The HON. SAMUEL R. VAN SANT, Winona, - - - - *Ex-Officio*
The Governor of the State

The HON. JOHN W. OLSEN, Albert Lea, - - - - - - *Ex-Officio*
The State Superintendent of Public Instruction

The HON. THEODORE SCHURMEIER, St. Paul, - - - - 1904

The HON. STEPHEN MAHONEY, B. A., Minneapolis, - - 1907
Secretary of the Board

The HON. O. C. STRICKLER, M. D., New Ulm, - - - - - - 1907

The HON. JAMES T. WYMAN, Minneapolis, - - - - - - 1907

The HON. ELMER E. ADAMS, B. A., Fergus Falls, - - - - 1909

The HON. THOMAS WILSON, St. Paul, - - - - - - - 1909

The HON. WILLIAM M. LIGGETT, Benson, - - - - - - - 1909

The HON. A. E. RICE, Willmar, - - - - - - - - - - 1909

Executive Officers

THE UNIVERSITY

CYRUS NORTHROP, LL. D., *President*
STEPHEN MAHONEY, B. A., *Purchasing Agent*
E. BIRD JOHNSON, B. S., *Registrar*
D. W. SPRAGUE, *Accountant*

THE COLLEGES

FREDERICK S. JONES, M. A., *Dean of the College of Engineering and the Mechanic Arts*
WILLIAM R. APPLEBY, M. A., *Dean of the School of Mines*
WILLIAM M. LIGGETT, *Dean and Director of Department of Agriculture.*
WILLIAM S. PATTEE, LL. D., *Dean of the College of Law*
PARKS RITCHIE, M. D., *Dean of the College of Medicine and Surgery*
ALONZO P. WILLIAMSON, LL. M., M. D., *Dean of the College of Homeopathic Medicine and Surgery*
WILLIAM P. DICKINSON, D. D. S., *Dean of the College of Dentistry*
FREDERICK J. WULLING, PH. G., *Dean of the College of Pharmacy*
FREDERICK D. TUCKER, B. A., *Principal of the School of Agriculture*

LIBRARIES AND MUSEUMS

WILLIAM WATTS FOLWELL, LL. D., *Librarian*
LETTIE M. CRAFTS, B. L., *Assistant Librarian*
INA FIRKINS, B. L., *Library Assistant*
ANNA L. GUTHRIE, B. A., *Library Assistant*
MARY S. MCINTYRE, B. S., *Librarian of School of Agriculture*
THOMAS G. LEE, M. D., *Librarian of Department of Medicine*
HUGH E. WILLIS, LL. M., *Librarian of the College of Law*
CHRISTOPHER W. HALL, M. A., *Curator, Geological Museum*
HENRY F. NACHTRIEB, B. A., *Curator of the Zoological Museum*

ALLEN W. GUILD, *Superintendent of Buildings*
EDWIN A. CUZNER, *Superintendent of Grounds*

Calendar

FIRST SEMESTER.

SEPTEMBER	1.	Registration and assignment of seats.
	2-4.	Entrance examinations, 9 a. m. and 2 p. m.
		Examinations for conditions and advanced standing, 9 a. m. and 2 p. m.
	7-8.	Classification of students.
	8.	Opening lecture.
	9.	Lecture and laboratory courses begin.
NOVEMBER	26.	THANKSGIVING DAY.
DECEMBER	19.	Holiday vacation begins.
	25.	CHRISTMAS DAY.
JANUARY	1.	NEW YEAR'S DAY.
	5.	Work resumed.
	13.	First semester ends.
	14-20.	Mid-year examinations.

SECOND SEMESTER.

JANUARY	21.	Second semester begins.
FEBRUARY	12.	LINCOLN'S BIRTHDAY—Holiday.
	22.	WASHINGTON'S BIRTHDAY—Holiday.
MAY	14.	Second semester ends.
	16.	Final examinations begin.
	27.	Annual meeting of the faculty.

COMMENCEMENT WEEK.

SUNDAY,	MAY 29.	BACCALAUREATE SERVICE, - - - - - 3:00 p. m.
MONDAY,	MAY 30.	SENIOR CLASS EXERCISES—Announcement by class.
TUESDAY,	MAY 31.	Closing address to the College of Medicine and Surgery.
WEDNESDAY,	JUNE 1.	ALUMNI DAY.
THURSDAY,	JUNE 2.	COMMENCEMENT DAY—The Thirty-first Annual Commencement.
		Graduating Exercises, - - - - - - 9:00 a. m.
		Alumni Banquet and President's Reception, 1:00 p. m.
FRIDAY,	JUNE 3.	SUMMER VACATION BEGINS.

College of Medicine and Surgery

THE FACULTY.

CYRUS NORTHROP, LL. D., *President.*
PARKS RITCHIE, M. D., *Dean and Professor of Obstetrics.*
CHARLES A. WHEATON, M. D., *Emeritus Professor of Surgery.*
THOMAS G. LEE, B. S., M. D., *Professor of Histology and Embryology and Librarian.*
CHARLES A. ERDMANN, M. D., *Professor of Anatomy.*
RICHARD OLDING BEARD, M. D., *Secretary and Professor of Physiology.*
HENRY MARTYN BRACKEN, M. D., L. R. C. S., Edin., *Professor of Materia Medica and Therapeutics.*
FRANK FAIRCHILD WESBROOK, M. A., M. D., C. M., *Professor of Pathology and Bacteriology.*
J. W. BELL, M. D., *Professor of Physical Diagnosis and Clinical Medicine.*
CHARLES LYMAN GREENE, M. D., *Professor of Theory and Practice of Medicine.*
CHARLES H. HUNTER, A. M., M. D., *Clinical Professor of Medicine and Chief of Medical Clinic.*
EVERTON J. ABBOTT, A. B., M. D., *Clinical Professor of Medicine and Chief of Medical Clinic.*
HENRY L. STAPLES, A. M., M. D., *Clinical Professor of Medicine.*
JAMES H. DUNN, M. D., *Professor of Surgery.*
FREDERICK A. DUNSMOOR, M. D., *Professor of Operative and Clinical Surgery.*
JAMES E. MOORE, M. D., *Professor of Clinical Surgery.*
J. CLARK STEWART, B. S., M. D., *Professor of Principles of Surgery.*
JUSTUS OHAGE, M. D., *Professor of Clinical Surgery.*
JOHN T. ROGERS, M. D., *Professor of Clinical Surgery.*
ARTHUR J. GILLETTE, M. D., *Professor of Orthopedic Surgery.*
A. B. CATES, A. M., M. D., *Professor of Obstetrics.*
ALEX J. STONE, M. D., LL. D., *Professor of Diseases of Women.*
AMOS W. ABBOTT, M. D., *Clinical Professor of Diseases of Women.*
A. MCLAREN, A. B., M. D., *Clinical Professor of Diseases of Women.*
JOHN F. FULTON, Ph. D., M. D., *Professor of Ophthalmology and Otology.*
FRANK C. TODD, M. D., *Clinical Professor of Ophthalmology and Otology.*
C. EUGENE RIGGS, A. M., M. D., *Professor of Nervous and Mental Diseases.*
W. A. JONES, M. D., *Clinical Professor of Nervous and Mental Diseases.*
THOS. S. ROBERTS, M. D., *Professor of Diseases of Children.*
MAX P. VANDER HORCK, M. D., *Professor of Diseases of the Skin and of the Genito-Urinary System.*
W. S. LATON, M. D., *Professor of Diseases of the Nose and Throat.*
ARTHUR SWEENEY, M. D., *Professor of Medical Jurisprudence.*
J. E. SCHADLE, M. D., *Clinical Professor of Diseases of the Nose and Throat.*

CORPS OF CLINICAL PROFESSORS AND INSTRUCTORS.

BURNSIDE FOSTER, M. A., M. D., *Clinical Professor of Diseases of the Skin and Lecturer upon History of Medicine.*
JAMES T. CHRISTISON, M. D., *Clinical Professor of Diseases of Children.*
C. NOOTNAGEL, M. D., *Clinical Professor of Medicine.*
L. A. NIPPERT, M. D., *Clinical Professor of Medicine.*
H. J. O'BRIEN, M. D., *Clinical Professor of Surgery.*
J. WARREN LITTLE, M. D., *Clinical Professor of Surgery.*
GEORGE D. HEAD, B. S., M. D., *Professor of Clinical Microscopy and Medicine.*
HERBERT W. DAVIS, M. D., *Clinical Instructor in Obstetrics.*
GEORGE M. COON, M. D., *Clinical Instructor in Genito-Urinary Diseases.*
ANDREW M. HENDERSON, M. D., *Clinical Instructor in Medicine.*

J. L. Rothrock, M. D., *Clinical Instructor in Pathology and Gynecology.*
L. B. Wilson, M. D., *Senior Demonstrator in Pathology.*
S. M. White, B. S., M. D., *Assistant Professor of Pathology and Bacteriology.*
Wm. M. Chowning, B. A., M. D., *Junior Demonstrator of Pathology and Bacteriology.*
H. C. Carel, B. S., *Assistant Professor of Chemistry.*
Winfield S. Nickerson, Sc. D., *Assistant Professor of Histology.*
Margaret L. Nickerson, M. A., *Instructor in Histology.*
M. Russell Wilcox, M. D., *Demonstrator in Physiology.*
Eleanor M. Wilkinson, *Instructor in Physiology and Dietetics.*
H. K. Read, M. D., *Demonstrator of Anatomy.*
Geo. E. Senkler, M. D., *Clinical Instructor in Physical Diagnosis.*
A. W. Dunning, M. D., *Clinical Instructor in Nervous and Mental Diseases.*
Frederick Leavitt, M. D., *Clinical Instructor in Obstetrics.*
J. C. Litzenberg, B. S., M. D., *Clinical Instructor in Obstetrics.*
F. R. Wright, M. D., *Clinical Instructor in Dermatology and Genito-Urinary Diseases.*
A. E. Benjamin, M. D., *Clinical Instructor in Gynecology.*
H. P. Ritchie, Ph. B., M. D., *Clinical Instructor in Gynecology.*
H. L. Williams, M. D., *Clinical Instructor in Gynecology.*
S. P. Rees, B. S., M. D., *Instructor in Physical Diagnosis and Clinical Medicine.*
A. T. Mann, B. S., M. D., *Clinical Instructor in Surgery.*
Judd Goodrich, M. D., *Clinical Instructor in Surgery.*
Warren A. Dennis, M. D., *Clinical Instructor in Surgery.*
A. R. Colvin, M. D., *Clinical Instructor in Surgery.*
E. V. Appleby, M. D., *Clinical Instructor in Ophthalmology.*
Wm. R. Murray, B. A., M. D., *Clinical Instructor in Ophthalmology and Otology.*
John B. Brimhall, M. D., *Clinical Instructor in Orthopedic Surgery.*
Alfred Lind, B. S., M. D., *Lecturer in Mechano-therapy.*

CLINICAL AND LABORATORY ASSISTANTS.

B. S. Nickerson, B. S., *Instructor in Chemistry.*
A. A. Law, M. D., *Assistant in Operative Surgery.*
R. A. Campbell, M. D., *Assistant in Diseases of the Nose and Throat.*
Charles R. Ball, M. D., *Assistant in Nervous and Mental Diseases.*
Walter Ramsey, M. D., *Assistant in Pediatrics.*
David Lando, M. D., *Assistant in Medicine.*
E. R. Hare, M. D., *Prosector in Anatomy.*
W. H. Condit, B. S., M. D., *Assistant in Materia Medica and Surgery.*
Geo. D. Haggard, M. D., *Assistant in Physiology.*
P. A. Hoff, M. D., *Assistant in Clinical Medicine.*
Lester W. Day, M. D., *Assistant in Clinical Medicine.*
Jas. T. Gilfillan, M. D., *Assistant in Clinical Medicine.*
Marion A. Mead, M. D., *Assistant in Laryngology.*
L. O. Dart, M. D., *Assistant in Pediatrics.*
H. L. Ulrich, M. D., *Assistant in Clinical Microscopy.*
R. E. Farr, M. D., *Assistant in Surgery.*
A. M. Webster, B. A., *Instructor in Latin.*

UNIVERSITY SCHOLARS.

GIVING INSTRUCTION AND ASSISTING IN LABORATORIES.

In Anatomy—Karl Klemer.
In Histology and Embryology—Herbert Coulter, E. E. Olander, C. W. Wilkowski, J. E. Hynes, C. C. Tyrrell.
In Bacteriology and Pathology—Chelsea Pratt, H. W. Old, D. L. Tilderquist, F. C. Schuldt, W. F. Braasch, F. W. Davis.
In Surgical Pathology—O. W. Rowe.
In Chemistry—A. E. Carr, M. Lando.

The Department of Medicine

THE DEPARTMENT OF MEDICINE INCLUDES THE FOLLOWING NAMED COLLEGES:

The College of Medicine and Surgery.
The College of Homeopathic Medicine and Surgery.
The College of Dentistry.
The College of Pharmacy.

Each college is distinct in the government of its internal affairs, has its own faculty and an independent curriculum, excepting in the studies of anatomy, physiology, chemistry, histology and embryology. These studies, so far as they are required in each course, are pursued by all the students of the department in common.

BUILDINGS AND EQUIPMENT.

The department is resident in four buildings situated upon the University campus, viz: Medical hall, the laboratory of medical science, the laboratory of chemistry and the laboratory of anatomy.

Medical hall contains the offices of the deans of the college of medicine and surgery, of the college of homeopathic medicine and surgery and of the college of dentistry; the large amphitheatre and lecture rooms of the several colleges, the library and reading room of the department, the laboratory of materia medica, the operating rooms and laboratories of dentistry and the dental infirmary.

The laboratory of medical sciences is a building especially designed for laboratory uses. One wing of the building is occupied by the college of pharmacy and the department of physiology. It contains the office and private laboratory of the dean of the college of pharmacy, the pharmaceutical and botanical laboratories, the laboratory of organic chemistry, with preparation and stock rooms. The office of the secretary of the college of medicine and surgery, a large lecture amphitheatre, especially arranged for demonstrative work, the laboratories of physiology, physiologic chemistry and practical dietetics, and operative surgery are also situated in this wing.

The center and opposite wing are occupied by the departments of histology and embryology, pathology and bacteriology. Each of these branches has its well-lighted laboratories, preparation rooms and private study rooms.

Upon the basement floor are laboratory stock rooms and the animal rooms devoted to physiologic and bacteriologic purposes.

A large laboratory upon the first floor is assigned to the bacteriological work of the State Board of Health.

The laboratory of chemistry is a one-story brick building devoted entirely to the use of this department. It is equipped with amphitheatre, laboratories, preparation rooms, store rooms, and private offices of the professor and assistant professor of chemistry.

The laboratory of anatomy is a new two-story and basement building, 35x 60 feet. In the basement are the morgue, injecting room, cold storage vaults, and engine and apparatus for the carbon dioxide freezing plant. On the first floor are an amphitheatre seating one hundred and seventy-five students, the private offices of the professors and instructors, a private dissecting room and a small laboratory for research work. The entire second floor is devoted to laboratories for practical work in anatomy.

The legislature has provided for the erection of a new building for the laboratories of bacteriology and pathology, which will be built within the next two years. The retirement of these laboratories from the present medical science building will leave enlarged room for the accommodation of the remaining chairs.

The University Clinical Building is situated in a part of the city most favorable to the development of an out-door service and, at the same time, accessible to the students. It is of two stories and covers 40x150 feet. It affords ample floor space for amphitheatres, waiting rooms, dispensary and class rooms for each of the clinical branches. Wards and laboratories, in which section work in medical and surgical diagnosis can be conducted, have been equipped.

The department of medicine is in intimate relationship, through its several faculties, with the hospitals, infirmaries and dispensaries of the cities of Minneapolis and St. Paul. Through these agencies it utilizes, for the benefit of its students, the clinical material of these two large centers of population. The location of the University near the interurban car line enhances the value and convenience of these clinical opportunities.

A medical library, containing some three thousand volumes and supplied with current periodicals, is open to all the students of the department. The collection has been chosen with special regard to the need for reference work and collateral reading. The general library of the University and the public and medical libraries of Minneapolis and St. Paul are also open to the students of this department.

The College of Medicine and Surgery

RULES AND REGULATIONS OF THE DEPARTMENT.

COLLEGE YEAR.

The sixteenth annual course of study in this department will begin on September 1st, 1903, and will continue nine months, closing upon the first Thursday in June, 1904.

The college year is divided into semesters; the first semester ending January 13th, 1904. The succeeding week will be devoted to mid-year examinations which will be conducted in many of the departments. The second semester will begin January 21st, 1904, and will close May 14th, 1904, when the final examinations of the year will begin. Commencement exercises will occur in common with the other departments of the University, during the week ending June 3rd, 1904.

ENROLLMENT.

It is desirable that students matriculate on or before September 1st.

Students will be assigned seats in order of and at the time of their matriculation. Such matriculation and assignment of seats will be had in the office of the registrar of the University. Students will then present themselves for entrance examination, or for the approval of their evidences of preliminary qualifications, to a committee of the college of science, literature and the arts appointed for this purpose. Having received an entrance certificate from this committee they will report to the dean and secretary of the college for admission and classification. They will then be furnished with a record of their standing and of the studies to be taken and they will be required to present this record to the professors in charge of such studies within the first week of the term.

REQUIREMENTS FOR ADMISSION.

HIGH SCHOOL REQUIREMENTS.

Applicants for admission to the College of Medicine and Surgery of the University of Minnesota must present, to the dean and secretary of this college, credentials, properly signed, showing that the applicant has satisfactorily completed the branches of study, covered in a full four years' high school course and, in addition, the branches covered in the freshman year of some approved college or university, according to the conditions herein stated.

The applicant who cannot present credentials must submit to an examination on the subjects, given in the schedule, herewith submitted, for which he has no credentials.

English Language. (*a*). English Composition and Rhetoric.

Candidates are expected to show a familiarity with the principles and technical terms in ordinary high school texts upon the subject, whether acquired by the direct study of such texts or mainly by the study of selected English masterpieces. It should not be forgotten that the main purpose of this subject is to teach the student to use language correctly and forcibly. To this end students should be given constant exercise in composition writing. A knowledge of the subject matter of the texts used will be considered of less importance than the demonstration of ability to write good English.

A full year of work in the high school, five hours per week, should be devoted to this subject.

Mathematics (*a*). Algebra, elementary (one year).

Addition, subtraction, multiplication, division, factoring, highest common divisor, lowest common multiple, fractions, simple equations (with one, two, and several unknown quantities) followed by problems, theory of exponents, involution (including the binomial theorem for positive integral exponents), evolution, radical inequalities, ratio, proportion, progression, and quadratic equations with problems.

Geometry (*b*). Plane (one year).

Any of the standard texts on this subject will furnish the necessary preparation. Isoperimetry, symmetry, and maxima and minima of figures are not required. The exercises requiring solutions and demonstrations should not be omitted.

Latin (*a*). Grammar (one year).

Will include the subjects of orthography, etymology and syntax. Proficiency is particularly desired in the following subjects: the analysis of the verb forms, the rules of syntax, and the principal parts of the irregular verbs.

(*b*) Cæsar, 4 books (one year).

First four books, or selections from the seven books equivalent to four; or three books, with thirty pages of Cornelius Nepos, or two books with sixty pages of Cornelius Nepos. Special attention should be paid to the translation of passages of the text into correct and idiomatic English; grammatical questions connected with the text; more especially on the subjunctive mood, indirect discourse and the sequence of tenses. The pupil should be able to rewrite in oratio recta all the passages of oratio obliqua that occur in the text. The student is expected to be familiar with the life of Caesar and an account of his wars.

In addition to the above named subjects, which are required, and for which substitutes can not be accepted, applicants shall present evidence of preparation in *seven year-credits,* or their equivalent, to be chosen from the following list:

Latin—Cicero, four orations, one year; Vergil, six books, one year.

Greek, two years—Grammar, one year; Anabasis, four books, one year.

German, two years—Grammar, one year; Literature, one year.

French, two years—Grammar, one year; Literature, one year.

Spanish, two years—Grammar, one year; Literature one year.

English—Latin element, one year; Literature, one year.

History—Greece and Rome, one-half year; England, one-half year;

Modern, one-half year; Medieval, one-half year; Senior American, one-half year.

Civics—One-half year.
Political Economy—One-half year.
Physics—One year.
Chemistry—One year or one-half year.
Botany—One-half year or one year.
Zoology—One-half year or one year.
Astronomy—One-half year.
Geology—One-half year.
Physiography—One-half year.
Solid Geometry—One-half year.
Higher Algebra—One-half year.

ADDITIONAL COLLEGE WORK REQUIRED.

In addition to the foregoing high school requirements for admission to the University of Minnesota, applicants for entrance to the College of Medicine and Surgery shall present evidence of having completed one year's work in a recognized college or university course. The following schedule presents the work of the first year in the college of science, literature and the arts. Applicants who have credit for one year of college work but whose credits do not evidence such a course or its fair equivalent, will be permitted to enter but must make up such deficiencies during the first year in the college of science, literature and the arts.

1. *Mathematics*—A full year of college work, four recitation periods per week, including the subjects of higher algebra and plane trigonometry.

Higher algebra, including simple equations, inequalities, proportion, variation, progression, quadratic equations, simultaneous equations of the second degree, maxima and minima of functions, differentiation of algebraic functions, development of functions, logarithms, theory of equations and solution of numerical higher equations.
Plane trigonometry, with numerous applications.

2. *Language*—One full year of college work, four recitation periods per week, in *one* of the following:—English, early English, including Chaucer and Spenser, Rhetoric, including some Shakespere and practice in writing; Latin, one year of college work, in advance of four years' work required for admission.

ENGLISH LANGUAGE AND LITERATURE.

Course I. (a) Chaucer, (b) Spenser.

Course II. Rhetoric.

This course includes two hours a week of rhetoric, the writing of compositions, and the study of prose masterpieces, and two hours a week of the study of Shakespere's plays.

LATIN.

Course I. Cicero de Amicitia and de Senectute.
Exercises in Latin composition and a review of the syntax.
Course II. Livy.
Selections from Livy and one play of Plautus or Terence; rise and development of Roman institutions.

3. *Language*—One full year of college work, four recitation periods per week, in *one* of the following:—

German, 1st or 3rd year's work in the subject.
French, 1st or 3rd year's work in the subject.
Greek, 1st or 3rd year's work in the subject.

GERMAN.

Course I. German begun.
(a) Whitney's Brief German Grammar, Bernhardt's German composition and Buchheim's German Poetry.
(b) German prose selections. Leander's Traumerein, Heyse's L'Arrabbiata, von Hillern's Hoher als die Kirche; grammar and composition completed.
(c) Scientific prose. Hodge's German Science Reader; grammar and composition completed.
Or Course III. Advanced classic prose and poetry.
(a) Gœthe's Prosa and Gedichte, author's life and works, Spanhoofd's Deutsche Grammatik. Oral and written exercises based on text.
(b) Schiller's Belagarung von Antwerpen, Heine's Prosa and Buch der Lieder, life and works of the author.
(c) Brandt & Day's German Scientific Reading, Spanhoofd's Deutsche Grammatik completed, original letters and essays.

FRENCH.

Course I. French begun.
De Borde's Elements of French; Kuhn's French Reader; modern plays.
Or Course II. Advanced grammar and composition.
Fasnacht's Progressive French Course.
Paul Bercy's Selections for Translating English into French. The classical authors of the XVII and XVIII centuries will be read. Fortier's Histoire de la Litterature Francaise.

GREEK.

Course I. Greek begun.
Brook's Introduction to Attic Greek.
Course II. Anabasis.
Prose composition based on the text.
Course III. Xenophon's Memorabilia.
Prose composition based on the text; collateral readings in history.
Course IV. Lysias and Demosthenes.
Prose composition based on the text; collateral readings in history antiquities.

4. *Science*—One full year of college work, four recitation periods per week, and four hours of laboratory work, in *one* of the following:

Botany.
Chemistry.
Zoology.

BOTANY.

Course I. General botany.

This course comprises a general survey of the plant kingdom with laboratory work on the cell, on the algae, lichens, fungi, mosses and ferns, gymnosperms and flowering plants. Lectures and laboratory work.

Or Course II. General plant morphology. First year.

This course comprises a thorough laboratory discipline in algae, fungi and lichens, and is the introductory course for students specializing in botany. Lectures, laboratory work and collateral reading throughout the year.

CHEMISTRY.

Course I. (a) General chemistry.

Lectures and laboratory work. The course includes a detailed study of the chemical and physical properties of the non-metals and their more important compounds.

(b)

Lectures and laboratory work. A continuation of course (a) with an introduction to organic chemistry.

ANIMAL BIOLOGY.

Course I. General zoology. "Short course" or first year of the "long course." Text-book, lectures, quizzes and laboratory work.

The course includes the elements of entomology, a general survey of the phyla of the animal kingdom and the elements of embryology. A collection of identified insects is required of each student.

A student may enter with two conditions in the foregoing entrance requirements, but must remove these conditions by the close of the first year. Blanks for certificates of credentials may be had upon application at the Dean's office.

N. B.—In September, 1905, *the sophomore course in an accredited college or university, or its equivalent in satisfactory examinations upon the subjects of the course, will be added to the foregoing requirements for entrance to this college.*

CONDITIONS.

Examinations of conditioned students and of applicants for advanced standing, in the studies of the first, second and third years, will be held during the first week of the semester. In the primary branches they occur upon the following dates:

September 3, 9 a. m. Anatomy, first year; Physiology, second year.

September 3, 2 p. m. Histology, first year; Chemistry, second year.

September 4, 9 a. m. Physiology, first year; Anatomy, second year.

September 4, 2 p. m. Chemistry, first year; Histology, second year.

Conditions may also be removed at the close of each semester.

No student will be eligible to final examinations in any branch who carries conditions of a previous year of that branch unremoved.

No student will be admitted to the fourth year who is conditioned in any of the studies of the first and second years.

Students who carry conditions into a succeeding year may find a resultant conflict of study hours. In that event they will give preference to the unfinished studies of the lower conflicting course.

CLASSIFICATION.

September 7th and 8th will be devoted to the classification of students. The opening lecture of the course will be delivered at 8 p. m., September 8th.

STANDING.

The standing of students is determined by the results of recitations, written examinations and laboratory work. It is indicated by the terms "passed" or "conditioned." Conditions may be removed as indicated above. Incomplete work must be made up before the final examinations of the following year.

Students must pass a majority of the studies of their year in order to classify in the next succeeding year.

Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarship may subject the student to temporary or permanent suspension.

ADVANCED STANDING.

Applicants for advanced standing must pass the entrance examinations or present the usual equivalents. They must furnish satisfactory evidence of time spent and subjects covered in previous professional studies and must present themselves at the above dates and pass the examinations in all branches in which they wish to be exempt.

No conditions of advanced standing will entitle the student to take the two years of any graded study coincidently.

Students will not be permitted to substitute private work in any branch for the regular college course work, excepting in the case of actual laboratory exercises done under the direct supervision of an instructor appointed by the chair and approved by the faculty. Examinations in such private laboratory work will be conducted by the chair. This rule does not apply to conditioned students.

Seniors in the college of science, literature and the arts, who contemplate entering the department of medicine, are permitted to elect courses in anatomy, histology and embryology, physiology and chemistry in this department in lieu of similar science courses in the college of science, literature and the arts. Since the medical practice act of this State requires four full years of medical study, these students must elect this work in the

department of medicine, in order that it may be contributive toward the degrees given in both colleges.

ATTENDANCE.

Students are required to attend four-fifths of the lectures in each course. This rule is not intended for the benefit of those who seek admission after the opening of the college year, but is designed to cover cases of sickness or unavoidable absence. It does not apply to laboratory courses which must be taken in full and must be entered, invariably, during the first week in which they begin.

TERMS OF TUITION.

The college of medicine and surgery has adopted a system of annual fees, in which are included all charges for matriculation, lecture courses, laboratory courses, dissections and graduation, except a rental fee for microscopes.* These fees are $100 per annum for the full course.

One-half of the annual fee will be payable when the student matriculates. The accountant's receipt for this portion of the fee will entitle the holder to take the entrance examinations and to classify. The second half will be payable at the opening of the second semester, January 21, 1904. If the applicant fails to pass the entrance examination, his fees will be returned by the accountant. Absence or failure to continue study will not entitle the student to return of fees, excepting in cases of special hardship, when application may be made to the executive committee of the Board of Regents.

A student who takes advanced standing will receive only a credit of five dollars upon his annual fee per semester of each laboratory course from which he may be exempt.

Students who are conditioned and fail to remove their conditions within one year shall be charged an extra examination fee.

Senior conditioned students who re-enter for work in any succeeding year will be charged a matriculation fee of ten dollars.

BREAKAGE AND LOSS.

In each laboratory course the student will be assigned a certain amount of apparatus and material, for which he will give a receipt.

For apparatus and material attaching to his laboratory desk he will also be held responsible. At the end of each course, if such apparatus and material are restored in good condition, this receipt will be returned to him.

A deposit of five dollars will be made with the accountant each year, by every student, at the time of enrollment as *a caution fee*. This fee is intended to cover the cost of unnecessary damage in the college buildings and of breakage and loss of laboratory apparatus and materials. It will be returned to the student at the close of each year, minus the cost of articles

assigned to him, which are not returned in good condition, or of damage to college property for which he is individually responsible. If responsibility for such damage cannot be individually fixed, a pro rata charge upon all students will be made.

*In each semester a fee of $2.00 to $4.00 will be charged for the rental of a microscope in each course in which its use is required, provided the student is not supplied with a satisfactory instrument of his own. It is an advantage for the student to possess a microscope.

SPECIAL STUDENTS.

Special students will pay to the accountant a fee of twenty dollars per year for each study they elect to pursue. They will be charged fees, varying from five to twenty dollars, for each laboratory course they may enter.

Graduate students will pay an admission fee of ten dollars which will entitle them to attend any lectures they may desire in regular courses.

CURRICULUM.

The course in the college of medicine and surgery leads to the degree of doctor of medicine. It covers a period of four years of collegiate study, each year representing nine months in actual residence.

The studies are graded, so far as practicable, throughout the four years and this grading is arranged with careful reference to the relation which the subjects naturally bear to each other.

The work of the first two years deals with the so-called scientific or laboratory branches; while that of the last two years includes the principles and practice of medicine and surgery, their associated specialties and the application of scientific or laboratory methods to clinical experience.

GRADED SYSTEM OF STUDY.

FIRST YEAR.

Histology and embryology, anatomy, physiology, chemistry, materia medica.

SECOND YEAR.

Histology and embryology, anatomy, physiology, chemistry, general bacteriology and pathology.

THIRD YEAR.

Surgical anatomy, special pathology, and bacteriology, surgical pathology, operative surgery, practice of surgery, practice of medicine, diseases of children, obstetrics, physical diagnosis, therapeutics.

FOURTH YEAR.

Practice of surgery, practice of medicine, clinical obstetrics, surgical pathology, practical physical diagnosis, nervous and mental diseases, gynecology, opthalmology and otology, genito-urinary diseases, orthopaedia, diseases of the skin, diseases of the nose and throat, hygiene.

ELECTIVE COURSES.

The following subjects, arranged in the fourth year, are electives: Operative surgery, therapeutics, practical dietetics, examination for life insurance, history of medicine, mechano-therapy, medical jurisprudence, pathology of the nervous system, radio-diagnosis and therapy, ophthalmoscopy, methods of microscopical technique, comparative histology and histogenesis of tissues, the animal parasites of man, comparative embryology of vertebrates, electro-therapeutics, microscopic study and diagnosis of tumors, clinical microscopy, special course in practical pathology, applied anatomy of the nervous system.

Senior students are required to elect four of these courses. They will be required to complete and to pass satisfactory examinations upon the subjects elected. The remaining subjects they may follow at their pleasure, without required examination.

SIX YEARS' COURSE.

With the season of 1903-04, the University will offer a six years' course of study in the colleges of science, literature and the arts and of medicine and surgery which will lead to the degree of bachelor of arts, at the end of a four years' course, and to that of doctor of medicine at the end of the six years' course. Students who intend to pursue the study of medicine are especially urged to enter this course, the subjects of which have been planned for their best equipment.

An outline of this course follows:

FIRST YEAR.

1. *Rhetoric,* two hours each week throughout the year.
2. **German,* four hours each week throughout the year, grammar and literature.
3. *Botany,* four hours each week throughout the year.
4. *Chemistry,* four hours each week throughout the year.
5. *Zoology,* four hours each week throughout the year.
6. *Plane Trigonometry,* four hours each week for twelve weeks of second semester.

**Note.*—Students who enter with two years of German may elect French in its stead in the first and second years.

SECOND YEAR.

1. *Rhetoric,* two hours each week throughout the year.
2. *German,* classical and scientific, four hours each week throughout the year.
3. *Chemistry,* four hours each week throughout the year.
4. *Comparative Anatomy of Vertebrates,* four hours each week throughout the year.
5. *Physics,* four hours each week throughout the year.

THIRD YEAR.

1. *Human Anatomy,* as outlined in courses I, II, III, and IV, department of anatomy, college of medicine and surgery.
2. *Histology and Embryology,* as outlined in courses I, II, and III, department of histology and embryology, college of medicine and surgery.
3. *Medical Chemistry,* including organic chemistry, toxicology, urinalysis and sanitary chemistry, etc.

4. *Physiology,* as outlined in courses I and II, department of physiology, college of medicine and surgery.
5. *Materia Medica,* as outlined in present courses in the college of medicine and surgery.

FOURTH YEAR.

1. *Human Anatomy,* as outlined in courses V and VI, department of anatomy,
2. *Histology and Embryology,* as outlined in courses IV and V, department of college of medicine and surgery.
2. *Histology and Embryology,* as outlined in courses III and IV, department of histology and embryology, college of medicine and surgery.
3. *Medical Chemistry,* courses continued as outlined in third year.
4. *Physiology,* as outlined in courses III, IV and V, department of physiology, college of medicine and surgery.
5. *Therapeutics,* as outlined in present courses in the college of medicine and
6. *Bacteriology and General Pathology,* as outlined in courses I and II, de- surgery.
6. *Bacteriology, and General Pathology,* as outlined in courses I and II, department of pathology and bacteriology, college of medicine and surgery.

FIFTH AND SIXTH YEARS.

The work of the fifth and sixth years will be essentially the same as is given in the third and fourth years in the college of medicine and surgery.

COURSES OF INSTRUCTION.

HISTOLOGY AND EMBRYOLOGY.

The laboratory of histology and embryology occupies most of the first floor and portions of the third floor and basement of the laboratory of medical sciences.

The general laboratory, 44x72 feet, extends across the north wing and is abundantly lighted by large windows on three sides and part of the fourth. Study tables accommodating seventy students are placed directly under the windows. A second tier of desks provides for twenty other students. Each student is provided with a separate locker for the storage of apparatus and material. The special laboratory, 24x35 feet, for research work by advanced students, adjoins the general laboratory. The next apartment, the library of the laboratory, contains a reference library consisting of a small but carefully selected collection of related literature, both standard and periodical. In addition to the laboratory library, the other libraries of the University, together with the public libraries of Minneapolis and St. Paul, afford the student access to the best publications among current periodicals and monographs. The rooms across the hall are devoted to the office and private laboratories of the professor and his assistant. On the third floor are located a preparation room, a small laboratory for special students, a dark room, a room for copying and enlarging, and a laboratory for photomicrography and projection. In the museum on this floor, are several cases containing series of embryos and histologic specimens. In the well-lighted basement are found a preparation room, 20x35 feet, for the hardening of tissues, &c., and an experimental laboratory and store room, 26x36 feet.

These laboratories are equipped with ninety Leitz' microscopes, each fitted with nose-piece and Abbe condenser; various forms of microtomes, such as freezing, Thoma, Minot, Schanze, &c., injection apparatus, aquaria thermostats, incubators, water baths, chemical hoods, a great variety of technical glassware,

Grubler's strains, a set of His' wax models, photomicrographic and reconstruction apparatus, charts, reference cabinets containing carefully selected slides, a large collection of hardened histological and embryological material with an abundant supply of fresh tissues.

The courses are made as practical as possible, beginning with the technique of the microscope, followed by the preparation of permanent specimens. Collections of typical specimens, also, will be loaned to the students for study. During the two years' course the student will acquire a valuable collection of slides of his own preparation illustrating the structure and development of the human body.

The course is illustrated by charts and lantern-slides of histological and embryological specimens. Demonstrations are given under the microscope of typical sections of tissues and organs, accompanied by camera lucida drawings, or photomicrographs, with explanatory text.

All students are recommended to purchase a microscope at the beginning of their medical course. This instrument is an indispensable part of the outfit of a well-trained physician. Suitable microscopes can be purchased at from $50 to $60, which may be fitted at any time with such other parts as may be desired.

Students not owning microscopes will be furnished with instruments at a rental of $4 for first year courses, and $2 for second year courses.

Course I. General morphology and histology.

Lectures, demonstrations and laboratory work. The course includes the structure and manipulation of the microscope; the structure and properties of protoplasm; the cell, its structure; cell division and reproduction, leading to the consideration of the elements of structure in the vertebrata. A comparative study of the histology of the blood, of the epithelial, connective, muscular and nervous tissues and of the vascular and lymphatic systems of man and the vertebrata. Lectures, etc., 6 hours a week. Laboratory work, 18 hours a week, first half, first semester, first year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course II. Elements of vertebrate embryology and histogenesis.

Lectures, demonstrations and laboratory work. A comparative study of reproduction; the ovum, the spermatozoon, fertilization, cleavage, formation of blastodermic layers, the formation of the embryo, foetal envelopes, etc., with practical work on chick and frog embryos. The differentiation and histogenesis of the tissues, etc. Lectures, etc., 6 hours a week; laboratory work, 18 hours a week, first semester, first year. Open to those who have completed course I.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON

Course III. Microscopic anatomy of man and vertebrates.

Lectures, demonstrations and laboratory work. Advanced methods of histological technique, with practical laboratory work. The comparative study of the morphology, microscopic anatomy, origin and development of the various organs of the integumentary, alimentary, respiratory and uro-genital systems, etc. Lectures, etc., 6 hours a week; laboratory work, 18 hours a week. First semester, first year. Open to those who have completed course I in histology and embryology.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course IV. Vertebrate neurology and neurogenesis.

Lectures, demonstrations and laboratory work. The comparative

study of the morphology, microscopic anatomy, origin and development of the central, peripheral and sympathetic nervous systems and the organs of special sense. Lectures, etc., 4 hours a week; laboratory, 18 hours a week. First half, second semester, second year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course V. Human embryology and organogenesis.

A comparative study of human and mammalian embryos, including impregnation, segmentation, and implantation of the ovum; the formation, structure and relationships of the placenta and foetal envelopes; the details of organogenesis, etc., studied in a practical manner upon a very large collection of serial sections of human and mammalian embryos, cut in various planes and representing all phases of development. First half, second semester, second year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

The following elective courses are open to properly qualified senior students and will consist of practical work in the laboratory upon special problems, a prescribed course of reading, with reports of work, and of lectures and demonstrations to be given from time to time.

Course VI. Methods of microscopical technique.

The preparation and use of the various solutions employed in fixing, hardening and staining, methods of embedding, sectioning, reconstruction, etc.

Course VII. (*a*) *Comparative histology and histogenesis of tissues.*

The animal cell, the epithelial, connective, muscular, and nervous tissues, blood, etc.

(*b*) *Comparative histology and histogenesis of the tissues.* The epidermal, digestive, respiratory and uro-genital systems of organs.

(*c*) *Comparative histology and histogenesis of the nervous system and sense organs.* Central nervous system, etc., after the methods of Weigert, Golgi, etc.

Course VIII. The animal parasites of man.

The means of recognition, morphology, structure and life history of the animal parasites of man.

ASSISTANT PROFESSOR NICKERSON.

Course IX. Comparative embryology of man and vertebrates.

A detailed study of the various stages in the development of vertebrate types.

Course X. Research work in histology and embryology.

Opportunity will be offered for those desiring to pursue original research and investigation.

The following text and reference books should be consulted:

Histology. Wilson's, The Cell; Bohm-Davidoff-Huber's Histology; Piersol's Histology; Szymonowicz-MacCullum's Histology; Stohr's Histology; Hertwig's The Cell; Kolliker's Gewebelehre; Oppel's Microskopishchen Anatomie; Duval's Histologie; Ranvier's Histologie; Klein's Histology; Weyesses' Histology; Sobotta-Huber's Atlas; Lee's Vade Mecum; Mann's Histology.

Embryology. Minot's Human Embryology; Minot's Laboratory text book; Hertwig's Handbuch; Hertwig-Mark's Embryology; McMurrich's Embryology; Kolliker's Embryologie; Kollman's Embryologie; Marshall's Embryology; Heisler's Embryology; Schenks' Embryologie; Schultze's Embryologie.

Neurology. Parker's Nervous System; Gordinier's Nervous System; Van Gehuchten's System Nerveux; Kolliker's Gewebelehre II; Obersteiner; Edinger's Vorlesungen; Sabin's Atlas.

ANATOMY.

The department of anatomy occupies a separate building, adapted to its work and equipped with the best modern appliances. It includes two large students' dissecting rooms, the general laboratories of anatomy, a bone laboratory for bone research work, the offices of the professor and demonstrator of anatomy, preparation rooms and morgue. An ample supply of dissecting material is provided.

In the first year the subjects of osteology, syndesmology and myology are pursued by means of lectures, laboratory demonstrations and recitations from the specimen.

The bones of a human skeleton are loaned to the student for purposes of study and recitation.

Angiology and splanchnology are studied in connection with the dissection and laboratory demonstrations of the thoracic, abdominal and pelvic viscera upon the lower animal. This is followed by the dissection of one-half of the human body.

In the second year the alimentary canal, respiratory tract, genito-urinary system, organs of special sense and the cerebro-spinal nervous system are pursued by means of lectures, recitations and laboratory demonstrations. The dissection of the human body is completed and followed by a series of lectures and demonstrations on descriptive and surgical anatomy.

The student dissects throughout the second semester of the second year, recites upon the subject and observes demonstrations made by a corps of assistants under the direction of the demonstrator of anatomy.

Dissection is supplemented by drawings from dissections, made upon outlines of the human skeleton, which are furnished to the student.

In the third year the student takes up the study of the human body from a topographical and surgical standpoint and is given a thorough review of the surgical regions, emphasizing the practical points in the relations, structure and distribution of the nervous system.

Course I. Osteology.

Lectures and recitations upon the human skeleton and supplementary work on the osteology of domestic mammals; 4 hours each week, for 5 weeks of first semester. Practical study of the skeleton, followed by recitations from the specimen, taken by the class, in sections; first semester. Required of all first year students.

Course II. Syndesmology.

Lectures, recitations and laboratory demonstrations, 4 hours each week, for 3 weeks first semester, first year. Open to those who have taken course I.

Course III. Myology.

Lectures and recitations, covering the entire muscular and arterial systems of the human body, with a supplementary study of comparative myology; 4 hours each week for four weeks. Laboratory work consists in identifying the muscles of the human body on dissected preparations and showing their actions. Class, in sections, 4 hours each week, first semester, first year. Open to those who have taken course II.

Course IV. Splanchnology and angiology.

Lectures on the thoracic, abdominal and pelvic viscera, 4 hours each week, for 3 weeks. Open to those who have taken course III. Labor-

Laboratory of Medical Sciences.

Laboratory of Physiologic Chemistry.

Anatomical Building.

atory work in demonstrating and dissecting the thoracic, abdominal and pelvic organs of the human subject or of the dog or sheep. First semester, first year. PROFESSOR ERDMANN.

Recitations upon the subjects of the first year's work, conducted in sections by DRS. H. K. READ AND E. R. HARE.

Course V. The nervous system.

Cerebro-spinal axis and its membranes; the cranial and spinal nerves; the sympathetic nervous system, and the special-sense organs. Lectures, recitations and dissections of the brain, 5 hours each week, for 4 weeks, first half, second semester, second year.

PROFESSOR ERDMANN.

Course VI. Dissections.

This work extends over a period of 8½ weeks, occupying with the lecture course the half days of this period each week. The method of work follows that laid down in Holden's Manual of Dissections.

DRS. H. K. READ AND E. R. HARE.

The second year lecture and dissecting courses are open to those having completed the first year's work in anatomy and histology.

Daily recitations, upon the subjects of the second year's course, conducted in sections.

PROFESSOR ERDMANN, DRS. H. K. READ AND E. R. HARE.

Course VII. Surgical anatomy.

The instruction consists of dissections, demonstrating the relations of structures composing the surgical regions of the body; demonstrations, upon the living subject, showing the anatomical and surgical landmarks and their applications; also the location, by surface tracings, of the viscera contained in the various cavities and of the important arteries, veins and nerves: 4 hours a week, second half, second semester. Required of third year students.

PROFESSOR ERDMANN.

Course VIII. Applied anatomy of the nervous system.

Elective.

Opportunity is afforded for advanced work in practical anatomy at any time during the college year.

The following text-books should be consulted:

Anatomy.

First year—

Gray's Descriptive and Surgical Anatomy, revised American edition.
Morris' Text-book of Human Anatomy.
Quain's Anatomy, 10th edition, Vol. II, Pts. I and II.
Gerrish's Anatomy.
Cunningham's Anatomy.

Second and third years—

Gray's Anatomy, revised American edition.
Quain's Anatomy, 10th edition.
Morris' Text-Book of Anatomy.
Gerrish's Anatomy.
Cunningham's Anatomy.
Spalteholtz' Atlas of Human Anatomy.
Holden's Practical Anatomy.
Erdmann's Manual of Dissections of the Human Body.
Owen's Manual of Anatomy.
Treve's Applied Anatomy.

Collateral reading—Flower's Osteology of Mammals; Gegenbauer's Elements

of Comparative Anatomy; Chauveau's Comparative Anatomy; Wiedersheim's Elements of Comparative Anatomy; McClellan's Regional Anatomy; Meynert's Psychiatry, Part I; anatomy, physiology and chemistry of the brain; Deaver's Surgical Anatomy; Edluger's Anatomy of the Nervous System; Hildebrand's Chirurgisch Topographise Anatomie.

PHYSIOLOGY.

The department of physiology occupies a suite of rooms in the laboratory of medical sciences, including the laboratory of experimental physiology, the laboratory of physiologic chemistry and practical dietetics, a demonstration and recitation room, the laboratory library and the office of the professor in this branch. A large amphitheatre, adapted to the demonstration of major experiments, immediately adjoins the physiologic laboratories and is used, also, for lecture purposes by this and other chairs.

In the basement of the laboratory of medical sciences, the chair maintains large and well-equipped animal-rooms, which are furnished with a large aquarium, frog tanks, animal enclosures and breeding cages. From this animal room are furnished supplies of material and animals for the work in experimental physiology, physiologic chemistry, histology, embryology, pathology and bacteriology. The hygienic conditions of the room are studied carefully, with a view to maintaining the physiologic and structural integrity of its animal occupants as perfectly as possible.

The physiologic laboratories are equipped with a full supply of apparatus, instruments, etc., for experimental purposes, and with materials, glassware, digesters, water baths, ventilating hoods, etc., for the work in physiologic chemistry. Their outfit includes sets of vivisection instruments, an artificial respiratory machine, batteries, Du Bois-Reymond coils, galvanometers, rheostats, moist muscle chambers, recording drums, Ludwig's kymograph, spring myograph, Burdon-Sanderson's stethometer, stethoscopes, phonendoscopes, Dudgeon's and muscle chambers, recording drums, Ludwig's kymograph, spring myograph, Bur-Marey's sphygmographs, cardiographs, Runne's chronograph, Roy's tonometer, Gaskell's clamp, oncometers, haemometers, haemoglobinometers, haematocrits, plethysmograph, etc., etc. They are furnished with motor power for the operation of recording apparatus and for the manufacture of apparatus in the laboratory workshop.

The course in physiology is graded in the first and second years. In the first year, the student hears lectures, recites and attends demonstrations and practical exercises in general physiology. These embrace the discussion, and, so far as possible, the observation of the physiologic ingredients of the animal body; the study of the physiology of cell-life, of the fundamental properties of the cell, of the nutritive media, blood, lymph and chyle; of the elementary functions of the nervous system; of the muscular tissues, the connective tissues and the epithelial tissues; of the vascular mechanism; of the alimentary canal; of the organs of secretion, respiration, excretion, and metabolism.

In the second year, the work is made as practical as possible and includes the study of such advanced topics as reproduction, the physiology of foetal life, of infancy, of maturity and of old age: and the functions of the brain, spinal cord, ganglionic and peripheral nerve systems. Twelve hours each week, during the first half of the first semester, are occupied in laboratory work in physiologic chemistry. This course affords the student a practical knowledge of the tissues and fluids of the body from a chemical standpoint. It embraces studies in the several classes of proteids, in fats, carbohydrates, bone, muscle, blood, milk, the digestive fluids, glycogen, etc.

A similar number of hours during the second half of the first semester are devoted to experimental physiology. For this work the class is divided into sec-

tions and the instruction is individualized so far as possible. The student is familiarized with physiologic apparatus and its uses, with forms of electrical stimulation and with methods of experimentation, while his knowledge of physiologic principles is strengthened by the observation of functional facts. Demonstrative work is combined with the individual experiments performed by the pupil.

In the fourth year, an elective course in practical dietetics is conducted during the second half of the first semester. It deals with the analysis of foods, with the general principles of food preparation and with selections of a suitable dietary for the several periods of life.

Practical talks upon the principles and means of food preparation, the serving of food, food selection, invalid and infant dietary, etc., are associated with this course. A trained instructor conducts the exercises in hygienic cooking.

A laboratory reference library is accessible to the students for collateral reading.

Course I. General physiology.

Lectures, recitations and demonstrations, dealing with the physiologic chemistry of the human body; the physiologic properties of the cell; the nutritive media; the nervous mechanisms in general; the muscular tissues, the connective tissues and the epithelial tissues, as the structural bases of the animal body. Eight hours a week, second semester, first year. PROFESSOR BEARD.

Course II. Systemic physiology.

Lectures, recitations, demonstrations and practical exercises. This course includes the physiology of the vascular system; the digestive system; the respiratory system; the secretory and excretory systems; and metabolism. Eight hours a week, second semester, first year. Open to those who have completed course I.

PROFESSOR BEARD.

Recitations upon the subjects of the first year are conducted in sections of the class.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Course III. Advanced physiology.

Lectures, recitations and demonstrations. The course includes the discussion of the statistics of nutrition; of reproduction; of the physiologic changes incident to successive periods of life, and of the functions of the nervous system. Six hours a week, first semester, second year. Open to those who have completed the courses in physiology of the first year. PROFESSOR BEARD.

Recitations upon the subjects of this course are conducted in sections of the class. PROFESSOR BEARD AND DR. WILCOX.

Course IV. Physiologic chemistry and microscopy.

Laboratory work and demonstrations. A practical study of the several classes of proteids; of carbohydrates, fats, muscle and bone; of gastric juice, saliva, pancreatic juice and bile in their respective digestions; of glycogen, and of blood, lymph, chyle and milk. Microscopic study of the carbohydrates in vegetables and animal forms; of the physiologic emulsions of fat; of the crystalline waste products, and of the physiologic conditions of the blood cells and the processes of fibrin formation. Practical instruction is given during this course in the enumeration of the blood cells, in the estimation of hæmoglobin and of the corpuscles in mass, in the spectroscopic examination of the

blood and in the use of the polariscope. Nine hours a week, first half of first semester, second year. Open to those who have completed courses I and II.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Course V. Experimental physiology.

Laboratory work and demonstrations. A study of physiologic apparatus, electrical stimuli and methods of experimentation; the demonstration of experiments which illustrate physiologic function in the muscular, nervous, vascular, respiratory and glandular systems. Six hours a week, second half of first semester, second year. Open to those who have completed course IV.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Text-Books:

First and second years—

Foster's Physiology, sixth edition.
Howell's American Text-Book of Physiology.
Stirling's Practical Physiology.
Waller's Human Physiology.

Collateral reading—Landois and Stirling's Handbook of Physiology; Chapman's Physiology; Stewart's Practical Physiology; Blyth's Foods; Raymond's Physiology; Kirk's Physiology; Hutchinson's Dietetics.

Course VI. Practical dietetics. (Elective.)

Lectures and laboratory exercises. A study of food analysis, food preparation and of the general principles of food selection, including a discussion of invalid and infant dietary. Six hours a week, second half of first semester, fourth year.

PROFESSOR BEARD AND MISS WILKINSON.

CHEMISTRY.

The work in medical chemistry is carried on in a building especially arranged for it. The qualitative laboratory has a floor space of about 2,300 square feet and accommodates 100 students at a time. It is used for instruction in general chemistry and qualitative analysis. The quantitative laboratory has a floor space of about 1,500 square feet and accommodates 68 students at a time. It is used for instruction in urinalysis, toxicology, quantitative analysis, organic chemistry and chemical hygiene. The water analysis laboratory has a floor space of 300 feet and is used exclusively for the sanitary examination of water.

Course I. The chemistry of the elements, with especial reference to inorganic materia medica.

Lectures and recitations; second semester, first year. Laboratory work in the chemistry of metallic and non-metallic elements. Second semester, first year. PROFESSOR CAREL.

Course II. Qualitative analysis.

Lectures and recitations; second semester, first year. Laboratory work, corresponding to the above and including the qualitative determination of metals and of acids. Second semester, first year.

PROFESSOR CAREL.

Course III. The qualitative and quantitative analysis of the urine.

Lectures and recitations; first semester, second year. Laboratory work, including the qualitative analysis of twenty specimens of normal and abnormal urine, the quantitative determination of sugar, albumen, chlorides, phosphates and urea, and the standardization of reagents. First semester, second year. PROFESSOR CAREL.

Course IV. Toxicology. The chemistry of the poisons and of their antidotes and the study of symptoms, treatment and post-mortem appearances following the introduction into the animal body of each and every poison.

Lectures and recitations: first semester, second year. Laboratory course in toxicology, including the chemical reactions of poisons and their antidotes: the physiological action of important poisons; the effects of antidotes: and post-mortems, followed by a toxicological examination of the blood, urine and various organs. (Optional.) First semester, second year. PROFESSOR CAREL.

Course V. Chemistry of Hygiene. The chemistry of air, soil and water. Lecture and recitations; first semester, second year. Laboratory course in the sanitary examination of air and water. (Optional.) First semester, second year. PROFESSOR CAREL.

Course VI. Chemistry of the Compounds of Carbon. A condensed course upon those features of organic chemistry which are of special interest and value to the physician.

Lectures and recitations; first semester, second year. Laboratory work in the preparation of important organic bodies used in medicine. (Optional.) First semester, second year.

PROFESSOR CAREL.

The following text-books will be recommended in the above courses:

Carel's Inorganic Chemistry Syllabus.
Bell's Notes on General Chemistry and Qualitative Analysis.
Carel's Chemical Urinalysis.
Reese's Toxicology.
Bell's Outlines of Organic Chemistry.

Collateral reading: Remsen's College Chemistry; Witthaus' Manual of Chemistry: Richter's Inorganic Chemistry: Roscoe and Schorlemmer's Treatise on Chemistry, Vols. I and II: Dammer, Anorganische Chemie: Graham-Otto, Anorganische Chemie: Purdy's Urinalysis; Tyson's Urinalysis; Neubauer and Vogel, Analyse des Harns: Woodman and Tidy's Forensic Medicine and Toxicology; Taylor's Treatise on Poisons; Dragendorff, Die Ermittelung von Giften; Witthaus and Becker's Medical Jurisprudence and Toxicology; Husemann and Hilger, Die Pflanzenstoffe: Parks' Hygiene; Rideal's Sewage; Leffman or Simon's Water Analysis; LeConte's Geology; Hill or Turneaure and Russell on Public Water Supplies; Bernthsen, Organische Chemie; Remsen's Organic Chemistry; Perkin and Kipping's Organic Chemistry; Levy or Fisher, Organischer Praparate.

MATERIA MEDICA AND THERAPEUTICS.

The work in materia medica and therapeutics is graded to cover a period of three years. It consists of lectures, recitations and demonstrations, conducted in the laboratory of materia medica. This laboratory is in Medical Hall. It is supplied with crude drugs and botanical specimens. Samples of these the student is allowed to retain for private study. Pharmaceutical preparations are also placed before him and he is taught the method of their manufacture and their most eligible forms.

Course I. Pharmacology.

This course includes the study of the general characteristics of drugs and of their physiologic actions. Lectures, recitations and laboratory work. Five hours a week, second semester, first year.

PROFESSOR BRACKEN.

Course II. Therapeutics.

In this course drugs are studied in groups, as governed by their physiologic action, and the therapeutic features of such groups are described. Other remedial measures than those depending upon drugs, such as hydro-therapy, serum-therapy, dietetics, etc., are fully considered. Lectures and recitations. Four hours a week, first semester, third year. PROFESSOR BRACKEN.

Course III. Therapeutics.

In this course the treatment of individual diseases is studied and the application of therapeutic agents to them is discussed. Lectures. Two hours a week, first semester, fourth year.

PROFESSOR BRACKEN

Text-Books:

Bracken's Outlines of Materia Medica and Pharmacology.

Collateral reading—The Pharmacopeia of the U. S.; The National Dispensatory; Sayre's Organic Materia Medica and Pharmacognosy; Culbreth's Materia Medica and Pharmacology; Foster's Practical Therapeutics; Hare's System of Practical Therapeutics; Allen's Handbook of Local Therapeutics.

PATHOLOGY AND BACTERIOLOGY.

The laboratories of pathology and bacteriology occupy spacious quarters in the laboratory of medical sciences. A general laboratory, 44x70 feet, is well lighted by windows on three sides and a part of the fourth. Electric light for microscopic and general illuminating purposes is also provided. The arrangement is such that four students are grouped so as to have a sink, with gas and electric light, distilled and city water and waste connection, and ample desk space next the windows. Eight lockers, arranged beneath the table and on the walls, provide for apparatus, microscopes, etc., and are given at the beginning of the course to each quartette. Immediately behind and accessible to each student, are sterilizers, incubators, blow-pipes, etc. Cupboards, drawers, a large incubator, sinks, fume chambers, demonstration and distribution tables, complete the arrangement of the room.

Two private rooms of the demonstrators flank on either side. Adjoining one of these are the department library and the office and private laboratory of the professor of pathology and bacteriology. Adjoining this is the private laboratory of the professor of surgical and clinical pathology. Specimens illustrative of surgical pathology are here prepared and diagnostic work done.

In the basement of the building the department has store rooms and a room where pathological animals are housed. Here too are equipped laboratories for research in bacteriology and experimental pathology, as well as a room in which all the culture media are made.

In the third story, immediately above and of the same size as the large laboratory, is a museum for the storage and exhibition of pathological specimens. A preparation room for their reception and assorting adjoins it.

The hospitals of Minneapolis and St. Paul afford a large supply of material and frequent opportunities for post-mortem examinations.

From many institutions and physicians throughout the state, valuable and interesting gross and microscopic materials are frequently received.

MICROSCOPES.

An adequate equipment of microscopes with attachments, immersion lenses, etc., permits of the rental of an instrument to each student, at a cost of $2.00 per course, whenever he is unprovided with one suitable for his purposes.

BACTERIOLOGY.

Course I. General bacteriology.

Lectures and demonstrations. The general scope of bacteriology, the history of its development and the biological and chemical problems involved in the life history of bacteria will be dealt with. The classification of the various bacterial forms, the methods of isolation and culture and the composition and manufacture of culture media will be studied until a thorough knowledge of technique is acquired. General and special study of the various antiseptics, disinfectants and bactericidal substances and conditions will be undertaken.

Laboratory work involving the making of their own culture media by the students, the study of bacteria in cultures and under the microscope, technique of staining and other methods, including observations of chemical and biological peculiarities, will be thoroughly carried out. Testing of various germicides—chemical and physical—and the use of bacteriological methods in the examination of drinking water will form an important part of the work. Eighteen hours per week during the last eight weeks of the second semester, second year.

PROFESSOR WESBROOK, DR. CHOWNING.

Course II. General pathology.

Lectures, demonstrations and laboratory work on the general processes involved in disease, to include the study of inflammation, the degen erations and tumors. Eighteen hours per week during the last eight weeks of the second semester, second year.

PROFESSOR WESBROOK, DR. WILSON.

Course III. Pathology of special diseases (includes bacteriology).

Disease processes will be grouped, so far as practicable, according to their etiology. Instruction will be afforded by means of lectures, demonstrations on museum specimens and preparations, and laboratory work on materials secured from clinical cases and at autopsy.

The course will consist of instruction in

1. Pathology of infectious diseases.

(*a*) Special bacteriology of the infectious diseases with the cultivation on the various media of all the important pathogenic bacteria, sown and kept under observation by each student. Fluids and tissues from clinical cases (human and animal) will be supplied for microscopic and cultural examination and an intimate relationship with clinical and pathological work maintained.

(*b*) Special pathology of the infectious diseases. Concurrently with the bacteriology and parasitology of each of the diseases, the pathology of each infection will be studied.

The important gross and microscopic lesions in all the organs will be illustrated from clinical and autopsy material fresh and preserved and supplemented by experiment work. Each student will be required to prepare and examine under the microscope selected fresh and stained specimens of morbid tissues, fluids, etc.

PROFESSOR WESBROOK, ASST.-PROFESSOR WHITE, DR. CHOWNING.

2. Pathological diseases of toxic and obscure origin. Under this are included the special degenerations, inflammations and other pathological conditions not already included under infectious diseases.

ASST.-PROFESSOR WHITE, DR. CHOWNING.

Course III. Pathological and special diseases.

Fifteen hours per week throughout the first semester of the third year.

Course IV.

Autopsies and post-mortem technique. Students will have an opportunity of personally taking part in this work, under the direction of the pathologists in charge, in the hospitals of Minneapolis and St. Paul. A knowledge of the technique of post-mortem work and of morbid anatomy will be thus afforded. Throughout the third and fourth years.

ASST.-PROFESSOR WHITE AND DR. ROTHROCK.

Course V. Special pathology of the nervous system.

An elective course limited to twenty-five students.

So far as possible, the clinical history, autopsy notes, gross specimens and sections stained by various special methods will be presented of individual cases representing the principal organic diseases of the nervous system. Twelve hours per week, first four weeks, second semester, fourth year.

DR. WILSON.

Course VI.

Laboratory course on the microscopic study and diagnosis of tumors. (Elective for a limited number of students in fourth year.) This course includes the comprehensive study of tumors, with the view of giving the student a knowledge of the methods employed in the laboratory diagnosis of this class of pathological conditions and familiarizing him with the characters of the commoner as well as the rarer types, special attention, however, being given to the latter. It is intended to supplement the course on the surgical pathology of tumors by Professor Stewart. Twelve hours per week, four weeks, second semester, fourth year.

ASST.-PROFESSOR WHITE.

Course VII. Research work in one of the following lines:

(*a*) General pathology. PROFESSOR WESBROOK.

(*b*) Special pathology and bacteriology and technique.

ASST.-PROFESSOR WHITE.

Second semester of third and throughout the fourth year, hours assigned.

Course VIII. Surgical pathology.

(See principles of surgery). This course will consist of lectures and laboratory demonstrations and will cover the general subject of the pathological and bacteriological basis of surgery. The lectures will be illustrated by charts and diagrams, by fresh and preserved specimens and, so far as practicable, demonstrations will be given of the various processes of the bacteria concerned. Especial attention will be given to inflammation and its complications, to the infectious diseases of surgical importance and to tumors. Two hours a week, first semester, third year, and 2 hours a week, second semester, fourth year.

PROFESSOR STEWART.

Text-Books:

Pathology—

American Text-Book of Pathology.
Ziegler's General and Special Pathology.
Schmaus-Ewing: Pathology and Pathological Anatomy.
Coplin's Manual of Pathology.
Durck-Hektoen: Special Pathologic Histology.
Jakob: Nervous System.
Coat's Manual of Pathology.
Mallory and Wright's Pathological Technique.

Collateral reading—Hamilton's Text-Book of Pathology; Delafield and Prud-

den's Handbook of Pathological Anatomy and Histology; Woodhead's Practical Pathology; von Kahlden's Pathological Histology; Thoma's Text-Book of General Pathology; Lubarsch Ostertag, Ergebnisse der Pathologie u Anatomie; Orth, Pathologische Anatomie; Birch-Hirschfield, Pathologische Anatomie; Clifford Allbutt's System of Medicine; Leukhart's die Thierische Parasiten des Menschen; Bouchard, Traite de Pathologie Generale: Eichorst, Pathologie u Therapie; Gaylord and Aschoff, Pathological Histology; Nothnagel, Encyclopedia of Practical Medicine.

Surgical pathology—

Bland Sutton, Tumors, Innocent and Malignant.

Collateral reading—Park's Surgery, Vol. I; Warren's Surgical Pathology, Senn on Tumors; Bowlby's Surgical Pathology; Nancrede's Lectures upon the Principles of Surgery; Watson Cheyne's Tuberculosis of Bones and Joints.

Bacteriology—

Muir and Ritchie's Manual of Bacteriology.
Park, Bacteriology in Medicine and Surgery.
Levy-Klemperer-Eshner Clinical Bacteriology.
Lehmann-Neumann-Weaver, Atlas and Textbook of Bacteriology.
Abbott, The Hygiene of Transmissible Diseases.

Collateral reading—Sternberg's Manual of Bacteriology; Woodhead's Bacteria and their products; Duflocq, Lecons sur les Bacteries Pathogenes; Flugge, die Mikroorganismen; Migula, System de Bakterien; Duclaux, Traite de Microbiologie; Hueppe (Jordan), Principles of Bacteriology; Novy, Laboratory Work in Bacteriology.

PRACTICE OF MEDICINE.

The course in the principles and practice of medicine is graded in the third and fourth years. It consists of lectures and recitations and of dispensary and bedside clinics in which the service of the chair is shared by a large corps of clinical professors and instructors. Examinations are held at the close of each year.

Course I. Case-taking and general symptomatology.

Course II. The thoracic viscera. Heart, lungs and blood vessels.

Course III. The infectious diseases.

Lectures and recitations, three hours each week, third year.

PROFESSOR GREENE.

Course IV. The abdominal viscera. Kidneys, stomach, intestines, liver.

Course V. Diseases of nutrition. Hæmatology, diabetes, gout, scurvy, etc.

Course VI. Tropical diseases.

Course VII. Examination for life insurance (elective).

Lectures and recitations, three hours each week, fourth year.

PROFESSOR GREENE.

Course VIII. Clinical exercises in general medicine, consisting of clinical instruction to sections of the third and fourth year classes, in the dispensaries, by the bedside and in the amphitheatres of the several hospitals in St. Paul and Minneapolis, as follows:

(*a*) City Hospital, Minneapolis, two hours a week, both years. Professors J. W. Bell, H. L. Staples and C. Nootnagel, Dr. L. A. Nippert and Dr. S. P. Rees.

(*b*) St. Barnabas' Hospital, Minneapolis, two hours a week, both years. Professor C. H. Hunter and Dr. Geo. D. Head.

(*c*) City and County Hospital, St. Paul, and St. Joseph's Hospital, St.

Paul, three hours a week, both years. Professor E. J. Abbott and Dr. Henderson.

(*d*) City and County Hospital, St. Paul, two hours a week, both years. Professor C. L. Greene and Drs. Senkler and Henderson.

(*e*) Free Dispensary, St. Paul, two hours a week, both years. Profes- C. L. Greene and Drs. Senkler, Lando and Ramsey.

(*f*) University Free Dispensary, Minneapolis, four hours a week, both years. Dr. L. A. Nippert.

Text-Books:

Practice of medicine.

Osler's Practice of Medicine.

Collateral reading—Allbutt's System of Medicine; Eichhorst's Internal Medicine; The College Library; Thompson's Practice of Medicine; Tyson's Practice of Medicine.

Case-taking and life insurance.

Greene: The Examination for Life Insurance and Its Associated Clinical Methods.

PHYSICAL DIAGNOSIS.

Course I. The thorax: its topography, methods of examination, applied to the normal and abnormal chest; disease of the respiratory organs; their physical signs and differential diagnosis.

PROFESSOR J. W. BELL.

Course II. The precordial region: its topography, methods of examination, applied to the normal and abnormal heart; diseases of circulatory organs; their physical signs and differential diagnosis.

PROFESSOR J. W. BELL.

Course III. The abdomen: its topography, methods of examination under normal and abnormal conditions; diseases of this region: their physical signs and differential diagnosis. Lectures and recitations. Three hours a week, first semester, third year.

PROFESSOR J. W. BELL.

Course IV. Clinical physical diagnosis.

Practical clinical instruction given to small sections of the class. For this purpose the clinical material of the several hospitals and dispensaries in Minneapolis is utilized. Four hours a week, first semester, third year. PROFESSORS NOOTNAGEL AND NIPPERT AND DR. REES.

Course V. Clinical physical diagnosis.

Practical clinical instruction given to small sections of the classes. For this purpose the clinical material of the several hospitals and dispensaries in Minneapolis is utilized. Two hours a week, fourth year.

PROFESSORS NOOTNAGEL AND NIPPERT.

Course VI. Clinical physical diagnosis. continued.

The clinical material of the hospitals and dispensaries of the city of St. Paul is utilized in the form of clinics. Two hours a week, fourth year. DR. G. E. SENKLER.

Text-Books:

Le Ferres' Physical Diagnosis.

Butler's Medical Diagnosis.

Collateral reading—Bramwell's Heart and Thoracic Aorta: Fox on the Lungs; Sansom's Heart and Aorta: Roger's Introduction to study of Medicine; Musser's Medical Diagnosis.

SURGERY.

The course in surgery is graded in the third and fourth years. Examinations are held at the close of each of these years. Lectures and recitations are given

by the teaching staff in surgery and clinics at the dispensaries and hospitals of Minneapolis and St. Paul by a large corps of instructors.

Course I. The principles of surgery.

Inflammation; traumatic fevers; suppurations; acute inflammations of joints: ulceration: gangrene; thrombosis and embolism; septicœmia; pyæmia; erysipelas; tetanus; surgical tuberculosis; actineomycosis, anthrax and glanders. Lectures and recitations, two hours a week, first semester, third year. PROFESSOR STEWART.

Course II. Operative surgery.

Lectures upon the principles of operative procedure; the preparation of patient, operator and operating rooms; the principles of asepsis, antisepsis and sterilization; anæsthesia and anæsthetics; hæmostasis, ligatures and sutures: dressings, bandages and the treatment of wounds. Two hours a week, first half, second semester, third year.

PROFESSOR DUNSMOOR.

Course III. The practice of surgery.

Fractures and dislocations, injuries of joints; injuries and surgical diseases of the skin; of the lymphatics, blood vessels and nerves: of the tendons, fasciæ and bursæ; of the face, mouth, tongue, jaws (excepting the study of tumors). Lectures and recitations. Four hours a week, first half, second semester, third year. PROFESSOR DUNN.

Course IV. The practice of surgery.

Surgery of the head, neck, chest, back, breast, abdomen, including hernia, anus, rectum and urinary tract. Lectures and recitations. Four hours a week, second half, first semester, fourth year.

PROFESSOR DUNN.

Course V. Operative surgery.

An elective laboratory work, consisting of operations, performed by sections of the class, under the supervision of the instructors, upon the cadaver and upon animals. Nine hours a week, first half of first semester, fourth year. PROFESSOR DUNSMOOR AND DR. LAW.

Course VI. Orthopedic surgery: including diseases of bones, joints, synoviæ and bursæ, congenital and acquired deformities: dystrophies, with the principles of treatment. Lectures and recitations. Three hours a week, second half, second semester, fourth year.

PROFESSOR GILLETTE.

Course VII. Surgical pathology: Tumors.

A special course upon tumors, taking up the general pathology and the general principles of the treatment of tumors. Each variety of tumor is then discussed, together with its histology, life-history, diagnosis and treatment. The course is illustrated by charts and museum specimens. Lectures and recitations, two hours a week, secend semester, fourth year. PROFESSOR STEWART.

Course VIII. Bandaging and dressings.

A practical course of instruction, by means of demonstrations and drill, under the supervision of the chair of operative surgery. Eight hours, first half, first semester, fourth year.

PROFESSOR DUNSMOOR AND DR. LAW.

Course IX. Clinical surgery.

Courses of clinics at which operations, in the whole domain of surgery, are witnessed by the students of the third and fourth years. These clinics are held in the dispensaries and hospitals of the cities of Minneapolis and St. Paul, upon Thursdays and Saturdays throughout the year. The classes alternate at the two cities in their attendance

upon these clinics. They are conducted as follows:

At the City and County Hospital, St. Joseph's Hospital or St. Luke's Hospital in St. Paul, weekly, by Professor John T. Rogers.

At the City and County Hospital, St. Joseph's Hospital, St. Luke's Hospital, or Free Dispensary, at St. Paul, with sections of class weekly, by Professor John T. Rogers, Dr. G. M. Coon, Professor A. J. Gillette, Dr. W. A. Dennis, Dr. Judd Goodrich and Dr. A. Colvin.

At the City and County Hospital, or at St. Joseph's Hospital, or at St. Luke's Hospital, St. Paul, weekly, by Professor Justus Ohage.

At the Asbury Hospital or the City Hospital, Minneapolis, weekly, by Professor F. A. Dunsmoor and Dr. J. Warren Little.

At St. Mary's Hospital, or the City Hospital, Minneapolis, weekly, by Professor J. H. Dunn.

At the City Hospital, Minneapolis, weekly, by Dr. A. T. Mann. At the University Free Dispensary, by Drs. Law, Mann and Condit. At the Northwestern Hospital, weekly, by Professors J. E. Moore and J. Clark Stewart.

Text-Books:

Ross and Carliss' Manual of Surgery.
Park's Surgery.
Tillman's Principles of Surgery and Surgical Pathology.
Kocher's Operative Surgery.
Warren's Surgical Pathology and Therapeutics.
Senn's Principles of Surgery.
American Text-Book of Surgery.
Wharton and Curtis' Practice of Surgery.
Nancrede's Principles of Surgery.
Jacobson's or Zuckerkandl's Operative Surgery.
Moore's Orthopædic Surgery.
Bradford's and Lovett's Orthopædic Surgery.
Whitman's Orthopædic Surgery.

Collateral reading—International Text-Book of Surgery; Agnew's Practice of Surgery; Dennis' Practice of Surgery; Stimson's Fractures and Dislocations; Hamilton's Fractures and Dislocations; McGrath's Surgical Anatomy and Operative Surgery.

OBSTETRICS.

The subject of obstetrics is taught by lectures, recitations and demonstrations upon the manikin; by illustrative drawings and by attendance upon cases of labor. The didactic work is done in the third year: the clinical study is had in the fourth year. A large part of the obstetric service of the City Hospital in St. Paul and of the Minneapolis City Hospital is at the disposal of the chair of obstetrics. Clinics are also held at other hospitals in St. Paul and Minneapolis.

Course I. The anatomy and physiology of the pelvic organs: the development of the embryo and appendages; pregnancy; symptoms and diseases; operative obstetrics; the complications of labor and its sequelæ. Lectures and recitations two hours a week in October and January, and three hours a week, second semester, third year.

PROFESSOR CATES.

Course II. The theory and practice of obstetrics.

The mechanism and conduct of normal labor, with its complications; abortions. Lectures and recitations. Two hours a week, November and December, third year.

PROFESSOR RITCHIE.

Course III. Hospital ward work.

Twice a week, from January 1st to May 1st, Dr. Frederic Leavitt will conduct sections of students through the maternity wards of the St. Paul City and County Hospital. A similar service will be conducted in the wards of the Minneapolis City Hospital, from October 10th, to February 10th, by Dr. Jennings C. Litzenberg. This course will be in the nature of an ante-partum clinic, in which will be studied the signs of pregnancy, pelvimetry, palpation, obstetric diagnosis, etc. This work is in the nature of a conference, each student viewing the subject from the standpoint of a practitioner.

DRS. LEAVITT AND LITZENBERG.

Course IV. Clinical obstetrics.

The study of and the participation in the conduct of two or more hospital deliveries in the fourth year, under the direction of Professors Ritchie and Cates and personally conducted by Drs. H. W. Davis, Frederic Leavitt, Harry P. Ritchie, and J. C. Litzenberg. A limited number of out-patients is assigned to members of the senior class who are authorized to attend these cases, under the supervision of the instructors, before, during and after labor.

Text-Books.

Williams, Jewett, Lusk, Hirst and the American Text-Book of Obstetrics.

GYNECOLOGY.

The course in the diseases of women consists of lectures, recitations, clinical instruction and the witness of operations, upon the human subject, as they may offer.

Course I. Lectures and recitations.

Two hours a week, first semester, fourth year. PROFESSOR STONE.

Course II. Clinical courses at the City and other hospitals in Minneapolis and St. Paul. Observations and examinations of patients, methods of examination, diagnosis and treatment.

Weekly Clinics in Minneapolis Hospitals, by Prof. A. W. Abbott and Dr. A. E. Benjamin.

Weekly clinics held in St. Joseph's Hospital, St. Paul, by Prof. Stone.

Weekly clinics at St. Luke's Hospital, St. Paul, by Professor McLaren.

Weekly clinics held at the City and County Hospital, St. Paul, during January, February, and March, by Dr. J. L. Rothrock.

The above announcements represent the surgical work given in gynecology throughout the entire year. Every operation in this branch of surgery is presented in these clinics. Owing to the limited field within which this work must be done, the attempt is always made to divide the class into small sections. Daily clinics for small sections are held at the University and St. Paul Free Dispensaries by Drs. A. W. Abbott, A. E. Benjamin, J. L. Rothrock, and H. P. Ritchie. This course is especially valuable since it brings the student into direct acquaintance with the patient. Individual instruction is given in history-taking, diagnosis, methods of examination, treatment and minor gynecology.

Text-Books.

Dudley's Diseases of Women.

Reed's Text-Book of Gynecology.

Kelly's Operative Gynecology.

Collateral reading—Emmett's Diseases of Women; Thomas and Munde's Gynecology; Pozzi's Diseases of Women.

OPHTHALMOLOGY AND OTOLOGY.

Course I. Diseases of the eye and its appendages: refraction and its errors.

Lectures and recitations. Two hours a week, first half, second semester, fourth year. PROFESSOR FULTON OR TODD.

Course II. Diseases of the ear.

Lectures and recitations. Two hours a week, first half, second semester, fourth year. PROFESSOR TODD OR FULTON.

Course III. Clinical lectures will be given and operations performed at St. Joseph's Hospital, St. Paul, every Saturday, fourth year.

Clinical lectures will be given every Thursday at the St. Paul City Hospital, during the months of January, February and March, and occasionally clinics will be given at St. Luke's Hospital. Fourth year.

PROFESSOR FULTON.

Course IV. Clinical lectures will be given and operations performed at St. Barnabas or Asbury Hospital, Minneapolis, every Thursday. Fourth year. PROFESSOR TODD.

Clinics will be given at the Minneapolis City Hospital occasionally during October, February, March and April. Fourth year.

PROFESSOR TODD.

Course V. Clinical instruction will be given at the University and St. Paul Free Dispensaries in the diagnosis of diseases of the eye and ear; in the methods of examination; in the use of instruments, including the ophthalmoscope, and in the application of remedies, etc. Fourth year. DRS. MURRAY AND APPLEBY.

Course VI. Ophthalmoscopy; a practical course of instruction elective in the senior year. DR. WM. R. MURRAY.

Text-Books.

Posey Wright's Diseases of the Eye, Ear, Nose and Throat.
May's Diseases of the Eye.
Bacon's Diseases of the Ear.

Collateral reading—De Schweinitz' Diseases of the Eye; American Text Book; Dench's Diseases of the Ear; Norris and Oliver's Ophthalmology; Savage's Ophthalmic Myology; Noyes and Politzer's Diseases of the Ear.

NERVOUS AND MENTAL DISEASES.

The required courses of lectures and recitations in this department will be given in the fourth year. Instructions will be by recitations and the "case method." Elective courses in clinical neurology, psychiatry, medical electricity and neuropathology will be offered in the fourth year.

Course I. Neurology.

Lectures, recitations and demonstrations. Two hours a week, twelve weeks, first semester, fourth year.

PROFESSORS RIGGS AND JONES (Alternating).

Course II. Psychiatry.

Lectures, recitations and demonstrations. Two hours a week, five weeks, first and second semesters, fourth year.

PROFESSORS RIGGS AND JONES (Alternating).

Course III. Electro-therapeutics (elective).

Fourth year. DR. A. W. DUNNING.

Course IV. Clinical neurology and psychiatry.

PROFESSORS RIGGS AND JONES.

Practical instruction will be given upon Thursdays and Saturdays, fourth year. Clinics will be conducted in St. Paul, by Professor Riggs, at the City and County Hospital, St. Luke's Hospital, St. Joseph's Hospital, and the Free Dispensary; and at Minneapolis by Professor Jones, at the City Hospital, Asbury Hospital, St. Mary's Hospital and the University Free Dispensary.

Course V. Laboratory Course (elective).
Fourth year. DR. L. B. WILSON.

Text-Books:
Dana's Nervous Diseases.
Church and Peterson's Nervous and Mental Diseases.
Berkeley's Mental Diseases.
Collateral reading—Clouston's Lectures on Mental Diseases; Collin's Treatment of Nervous Diseases; Edinger's Anatomy of the Central Nervous System; Gordinier's Anatomy of the Central Nervous System; Collin's Aphasia; Mills' Nervous Diseases.

DISEASES OF THE SKIN.

This subject is taught by lectures, recitations and clinical demonstrations.

Course I. The anatomy and physiology of the skin; diseases of the skin and its appendages; venereal and genito-urinary diseases. Two hours a week, second semester, fourth year. PROFESSOR VANDER HORCK.

Course II. Clinical lectures, in connection with the dispensaries and hospitals of Minneapolis and St. Paul. Weekly in the fourth year.
PROFESSORS VANDER HORCK AND BURNSIDE FOSTER AND DR. F. R. WRIGHT.

Text-Books.
White and Martin's Diseases of Urinary Organs.
Collateral reading—Taylor's Genito-Urinary and Venereal Diseases.
Hyde's Diseases of the Skin.
Jackson's Diseases of the Skin.
Hyde and Montgomery's Venereal Diseases.
Collateral reading—Crocker's Diseases of Skin; Morris' Diseases of the Skin; Hayden's Diseases of the Skin; Lydston's Genito-Urinary, Venereal and Sexual Diseases; Stelwagon's Diseases of the Skin.

DISEASES OF THE NOSE AND THROAT.

Course I. Anatomy and physiology of the nose and throat; pathology, diagnosis and treatment.
Lectures and recitations. Two hours a week, eight weeks, fourth year.
PROFESSOR LATON.

Course II. Clinical instruction, given at the University Free Dispensary, in the diagnosis of diseases of the nose and throat; in the methods of examination; in the use of instruments, and in the application of remedies, etc. Five hours a week, both semesters, fourth year.
PROFESSOR LATON.

Course III. Clinical instruction, given at the St. Paul Free Dispensary, in the diagnosis of diseases of the nose and throat; in the methods of examination; in the practical use of instruments and application of remedies; and in the *applied anatomy* of the nose and throat, illustrated by *dry* and *wet* preparations. Two hours a week, fourth year.
PROFESSOR SCHADLE.

Text-Books.
Shurley's Diseases of the Nose and Throat.
Ingall's Diseases of the Nose, Throat and Lungs.
Kyle's Diseases of the Nose and Throat.
Coakley's Diseases of the Nose and Throat.

DISEASES OF CHILDREN.

Course I. Didactic lectures, arranged to cover, so far as possible, the general subject of pediatrics. A course, consisting of two lectures a

week, in the second semester of the third year; beginning with a consideration of the special characteristics of the normal infant and child as distinguished from the adult and passing on to a detailed description of the features and management of the diseases peculiar to infancy and childhood and of the more or less specialized forms in which certain diseases common to all ages exist during the early years of life. These lectures will be suitably illustrated by charts, colored plates, specimens, and the occasional use of the stereopticon.

PROFESSOR T. S. ROBERTS.

Course II. Clinical instruction will be given at the St. Paul Free Dispensary and the St. Paul City Hospital four hours weekly throughout the fourth year. PROFESSOR J. T. CHRISTISON AND DR. RAMSEY.

Course III. Clinical instruction will be given in Minneapolis at the contagious wards of the City Hospital, St. Barnabas Hospital, the Children's Home, the University Free Dispensary and other specially designated places at such times as opportunity presents. Fourth year. PROFESSOR T. S. ROBERTS.

Text-Books.

Holt's Diseases of Children.
Rotch's Pediatrics.
American Text-Book of Diseases of Children.
Collateral reading—Osler's Practice of Medicine; Keating's Cyclopedia of Diseases of Children. Corlett's Acute Infections Exanthemata. Chapin's Theory of Practice of Infant Feeding; Stengel's Nootnagel's Encyclopedia.

HYGIENE.

A course of lectures in hygiene is conducted by a corps of the faculty. The general subject is thus divided into several branches, namely: chemistry of air, water and soil (included in the course in chemistry); the physiology of foods, beverages, clothing, bathing and exercise; public sanitation (including sewage and garbage disposal, applied and school disinfection, regulations of quarantine, the disposal of the dead, the development of vital statistics, the care of slaughter houses, etc.); the bacterial diagnosis of infectious diseases, and some practical phases of sanitary engineering. The examinations in this branch are conducted by the lecturers jointly. The course includes thirty lectures and recitations, which are given during the second half of the second semester of the fourth year.

PROFESSORS BEARD, WESBROOK, BRACKEN AND BASS.

Text-Books.

Coplin's and Bevan's Practical Hygiene.
Park's Hygiene.
Bergey's Principles of Hygiene.
Collateral reading—Richardson's Preventive Medicine; Buck's Hygiene and Public Health; Winter Blyth's Foods and their Composition.

MEDICAL JURISPRUDENCE.

An elective course of lectures and recitations, in the legal relations of medicine. Two hours a week, second half, second semester, fourth year. PROFESSOR SWEENEY.

Text-Books.

Taylor's Medical Jurisprudence.
Collateral reading—Hamilton's American System of Legal Medicine;

Withaus' Principles of Forensic Medicine and Toxicology; Wharton and Stille's Medical Jurisprudence; Reese's Medical Jurisprudence and Toxicology.

THE HISTORY OF MEDICINE.

An elective course of lectures is given in the history of medicine and of the medical profession from the earliest times, including accounts of the epoch-making discoveries in medicine, brief sketches of the lives of eminent physicians and an account of the great plagues of history. Three hours a week, second half, second semester, fourth year.

PROFESSOR BURNSIDE FOSTER.

MECHANO-THERAPY.

Courses of illustrated lectures and clinical demonstrations in gymnastics, massage and hydrotherapy. The principles of the physiology, technique and therapeutics are discussed. Two hours a week, first half, second semester, fourth year. DR. ALFRED LIND.

Text-Books.

Wide's Handbook of Medical Gymnastics.
Baruch's Principles and Practice of Hydro-therapy.

CLINICAL MICROSCOPY.

An elective course given in the senior year. The course will include: (a) The urine: a microscopical study of its colors and sediments and the microscopical study of blood, pus, epithelial casts, spermatozoa, etc., in the urine of disease; (b) The blood: the enumeration of red and white cells in the blood of pernicious anæmia, leukæmia, secondary anæmias, leucocytosis, leucopæmias, etc.; the estimation of hæmoglobin in chlorosis, secondary anæmias, pernicious anæmia, etc.; the making of blood smears and the fixing, staining, mounting and study of all forms of normal and pathological blood cells; (c) Stomach contents: the macroscopical, chemical and microscopical study of stomach contents from cases of cancer, ulcer, hyperacidity and anacidity, with especial reference to differential diagnosis; (d) Exudates and transudates: their study by lectures and demonstrations; (e) Parasites; their study by lectures and demonstrations. Nine hours a week during part of second semester, fourth year.

PROFESSOR GEO. DOUGLAS HEAD.

Text-Books.

Von Jaksch's Clinical Diagnosis.
Simon's Clinical Diagnosis.
Cabot's Clinical Examination of the Blood.
Ewing, Clinical Pathology of Blood.
Rieder's Atlas of Urinary Sediments.
Sahli's Lehrbuch der Klinischen Untersuchungs Methoden.

DEGREES.

The degree of doctor of medicine is conferred by the Board of Regents upon the students who are recommended, by vote of the faculty, for graduation. Candidates for the degree must possess the following essential qualifications:

(1) Twenty-one years of age and upwards.

(2) Good moral character.

(3) A degree of preliminary education equivalent to that demanded by the examination for entrance to this college.

(4) Four full college years spent in the study of medicine; the fourth year, at least, in this University, and the remainder in this or other recognized colleges of medicine.

(5) Satisfactory examinations passed in all branches in accordance with the foregoing rules.

The Rollin E. Cutts Prize.

Dr. Mary E. Cutts has created in the hands of the Board of Regents, in memory of her late husband, Dr. Rollin E. Cutts, with herself, an alumnus of the University of Minnesota, a fund from the income of which is to be awarded each year a gold medal to that member of the senior class to whom the faculty of the college of medicine and surgery shall award the highest scholarship in surgery.

DISPENSARY AND HOSPITAL CLINICS.

DISPENSARIES.

The University free dispensary is located in the new clinical building. Several rooms are devoted to the reception of patients and to their examination and treatment. Its service is a growing one and is utilized for the teaching of the classes of the third and fourth years. The faculty and a corps of assistants manage the dispensary. Dispensaries at Asbury Hospital and the City Hospital are also open to the students of the University. They are largely attended by members of the faculty.

The St. Paul Free Dispensary is centrally situated and offers its clinics to the students of this college. It owns the building formerly used by the St. Paul Medical College—a twenty-room building, which has been equipped for its occupancy. It centralizes the clinical opportunities of St. Paul and its staff is, similarly, made up largely of faculty members.

HOSPITALS.

The hospitals of the city of Minneapolis and St. Paul have very generously opened their doors to the students of this department. Saturday and Thursday mornings and afternoons, throughout the year, are devoted to the use of these clinical opportunities by the junior and senior classes. These classes alternate in periods of six weeks between the two cities upon the days mentioned.

The hospital facilities of the University are thus exceptionally good, since they are not limited to one large amphitheatre, where but a few students can closely observe diagnostic and surgical methods, but are divided among

Continued on page 48.

MINNEAPOLIS CLINICS

First and Second Semesters

October 1st to April 30th, 1902-1903.

THURSDAY.

9:00-11:00	Medicine	Prof. Bell and Dr. Rees.			
11:00-12:00	Medicine	Prof. Nootnagel and Dr. Rees..	⅓ Class....	.....	City Hospital.
9:00-12:00	Surgery or Gynæcology.	Prof. Moore..... / Prof. Abbott.....	⅓ Class....	.....	City Hospital. N. W., St. Bar. or Swedish.
9:00-10:30	Surgery.....	Dr. Little.....			City Hospital. or Asbury
10:30-12:00	Gynæcology...	Dr. Benjamin.....	⅓ Class....	.....	City Hospital. or St. Bar.

NOON RECESS.

1:00- 2:00	Surgery.....	Dr. Mann.....	3 Sections..	.....	Clinical Bldg. or N. W. Hosp.
1:00- 2:00	Medicine	Prof. Head and Dr. de la Barre.....	3 Sections..	.....	Clinical Bldg.
1:00- 2:00	Laryngology...	Prof. Laton or Dr. Mead	1 Section...	.....	Clinical Bldg.
1:00- 2:00	Pediatrics.....	Dr. Barber.....	1 Section...	.....	Clinical Bldg.
1:00- 2:00	Gynæcology...	Dr. Williams.....	Students...	.....	Clinical Bldg.
1:00- 2:00	Pharmacology.	Mr. Englund.....	Students...	.....	Clinical Bldg.
2:00- 3:00	Neurology.....	Prof. Jones	Class	.....	Clinical Bldg. or City Hosp.
3:00- 4:00	Dermatology .	Prof. Van der Horck	Class	.....	Clinical Bldg. or City Hosp.
4:00- 6:00	Autopsies	Prof. White.....	Sections....	.....	City Hospital.

SATURDAY.

9:00-110:0	Surgery.....	Prof. Dunn.....			St. Mary's or City Hospital.
11:00-12:00	Medicine	Prof. Head.....	½ Class ...	.....	City Hosp. or Clinical Bldg.
9:00-11:00	Surgery.....	Prof. Dunsmoor...			Asbury Hosp.
11:00-12:00	Pediatrics.....	Prof. Roberts.....	½ Class....	.....	City Hosp. or Clinical Bldg.
9:00-10:30	Ophthamology, and Otology..	Prof. Todd			City Hospital Asbury Hosp. or St. Bar.
10:30-12:00	Medicine	Prof. Nippert and Dr. Rees....	⅓ Class....	.....	City Hosp. or Clinical Bldg.

NOON RECESS.

1:00- 2:30	Medicine.....	Prof. Hunter	⅓ Class....	.....	Clinical Bldg. or St. Bar.
1:00- 2:30	Medicine.....	Prof. Staples	⅓ Class....	.....	City Hospital or St. Bar.
1:00- 2:30	Surgery	Prof. Stewart.....	⅓ Class. ..	.....	Clinical Bldg. or City Hosp.
4:00- 6:00	Autopsies.... .	Prof. White.....	Sections ...	.....	City Hospital.

Obstetric Clinics throughout the year by Prof. Cates and Dr. Litzenberg at City Hospital and other places.

ST. PAUL CLINICS 1902

First Semester

October 1st to December 31st

THURSDAY.

9:00-10:00	Orthopedia.....	Prof. Gillette....	Class	.....	St. Luke, St. Joseph, City Hospital.
10:15-12:00	Gynæcology.....	Prof. MacLaren.	Sections	.....	St. Luke, St. Joseph, City Hospital.
10:15-12:00	Surgery.....	Prof. O'Brien...	Sections	.....	St. Joseph, City Hospital.

NOON.

1.30 2:30	Medicine	Dr. Senkler.....	Sections	.....	Dispensary
"	Medicine	Dr. Lando.....	"	.....	"
"	Surgery.....	Dr. Goodrich....	"	.....	"
"	Nervous Diseases.	Dr. Dunning	"	.....	"
"	Eye.....	Dr. Appleby	"	.....	"
"	Pediatrics	Dr. Ramsey.....	"	.....	"
"	Ear, Nose & Thr't.	Prof. Schadle....	"	.....	"
"	Eye and Ear	Prof. Fulton.....	"	.....	St. Joseph, St. Luke
2:00- 3:00	Medicine	Prof. Greene	"	.....	City Hosp.
3:00- 4:00	Medicine	Prof. Greene	Class	.....	"
4.00- 5:00	Medicine	Prof. Abbott	Section	.....	"
"	Pediatrics	Prof. Christison.,	"	.....	"
"	Medicine.....	Dr. Gilfillan.....	"	.....	"
"	Obstetrics.....	Dr. Leavitt.....	"	.....	"
"	Autopsies and Pathol'gc Spc's	Dr. Rothrock....	"	.....	"

SATURDAY.

9:00-10:00	Nervous Diseases.	Prof. Riggs.....	Class	.....	Dispensary
10:15-12:00	Surgery	Prof. Rogers....	Class	.....	St. Luke, St. Joseph, City Hospital
10:15-12:00	Surgery.....	Prof. Ohage.....	Class	.....	St. Luke, St. Joseph, City Hospital

NOON.

1:30- 2:30	Medicine	Dr. Senkler.....	Section	.....	Dispensary
"	Medicine	Dr. Lando.....	"	.....	"
"	Surgery	Dr. Goodrich....	"	.....	"
"	Nervous Diseases..	Dr. Dunning....	"	.....	Dispensary and City Hospital
"	Eye....	Dr. Appleby. .	"	.....	Dispensary
"	Pediatrics	Dr. Ramsey.....	"	.....	Dispensary
"	Eye and Ear	Prof. Fulton	"	.....	St. Joseph, St. Luke, City Hospital.....
"	Ear, Nose & Thr't.	Prof. Schadle....	"	.....	Dispensary
"	Skin and Venereal.	Prof Foster.....	"	.....	"
3:00- 4:00	Medicine	Prof. Abbott.....	Class	.....	City Hospital
4:00- 5:00	Medicine	Prof. Abbott.....	Section	.....	"
"	Pediatrics	Prof. Christison.	"	.....	"
"	Medicine	Dr. Gilfillan.....	"	.....	"
"	Obstetrics.....	Dr. Leavitt.....	"	.....	"
"	Autopsies and Pathol'gc Spe's	Dr. Rothrock....	"	.....	"

Gynæcology, Prof Stone, St. Joseph's Hospital.
Obstetrics, Prof. Ritchie, Drs. Davis. Leavitt and H. P. Ritchie.
Gynæcology, Drs. Rothrock and H. P. Ritchie, daily clinic at Dispensary.

a number of hospitals where the various professors care for their private and clinical cases. This makes it possible to divide the classes into sections, so that each student has equal opportunities of observation and is in close touch with his teacher.

The City Hospital, of Minneapolis, occupies spacious buildings and affords a large mass of clinical material which members of the faculty upon its staff are permitted to utilize during their terms of service.

St. Mary's Hospital has a staff upon which this faculty is represented by four members. Its management has seconded the efforts of the staff to make the hospital useful to medical students by providing an amphitheatre of modern construction, in which seventy-five spectators can be accommodated. The hospital also opens its wards for the bedside study of disease. Surgical and medical clinics are held here upon the weekly clinic days.

St. Barnabas' Hospital has also generously equipped an amphitheatre, within which a class of fifty students can be gathered. Bedside instruction is given freely in its wards to the students of this college. Clinics are usually conducted in this amphitheatre on Saturdays. Its staff, also, numbers upon it several members of this faculty.

Asbury Methodist Hospital offers its clinical opportunities to the college. Thursday and Saturday clinics are held in its wards and amphitheatre. Its service is, in part, manned by faculty members.

The Northwestern Hospital has recently built a commodious amphitheatre, for the especial benefit of the University students and has added one more to the list of Minneapolis hospitals whose doors are open for clinical instruction. Its medical and surgical chiefs and several members of its staff are in the service of this college.

The City and County Hospital, of St. Paul, occupies a large building, of modern construction and generously equipped with clinical conveniences. Its management has spared neither effort nor means to make it a model of its class. It contains a large amphitheatre for teaching purposes. It enters some two thousand patients annually, a large proportion of whom are of the emergency order or suffer from acute forms of disease. This college is represented upon its staff by a majority of the members.

St. Joseph's Hospital has always contributed generously to the clinical advantages of the University. It contains a spacious amphitheatre, built and equipped for the students of this college. It has faculty members upon its staff who conduct weekly clinics in the hospital. Its service is large, its capacity being upwards of one hundred beds.

St. Luke's Hospital possesses all the most desirable features of modern hospital architecture and has a large clinical service. It is furnished with an amphitheatre for the benefit of students and has a thoroughly equipped operating room, in which clinics are frequently conducted.

Students

GRADUATE STUDENTS—1.

Caroline E. Leiberg, M. D., Women's Medical, Chicago.

FOURTH YEAR—73.

Anderson, William S., Houston, Minn.
Axilrod, David, Cumberland, Wis.
Baillie, William Finley, Barnesville, Minn.
Bevans, Theodore, St. Paul, Minn.
Bockmann, Michael, St. Paul, Minn.
Braasch, William, B. A., '00 Minnesota, Minneapolis, Minn.
Butler, John, Minneapolis, Minn.
Call, Alfred Marcus, Strum, Wis.
Campbell, Eugene Paul, St. Paul, Minn.
Catlin, John F., Delano, Minn.
Chilton, Leo W., Howard Lake, Minn.
Clarke, Robert, Elysian, Minn.
Coon, William Franklin, Eau Claire, Wis.
Coulter, Herbert, Ioamosa, Cal.
Davis, Frank Wright, Taopi, Minn.
Deslauriers, August A., St. Paul, Minn.
Ellis, Burton, Alpha, Minn.
Fitzgerald, John F., Minneapolis, Minn.
Fowler, Paul Hare, Rochester, Minn.
French, Ernest A., Plainview, Minn.
Fullerton, Ellen C., B. A. '00 Minnesota, Minneapolis, Minn.
Gray, Clyde E., Minneapolis, Minn.
Green, Eugene K., B. A. '94, Minnesota, Brooklyn Centre, Minn.
Hagaman, George K., North St. Paul, Minn.
Harden, Kate, Minneapolis, Minn.
Hart, Alfred B., Minneapolis, Minn.
Hebard, Sue, Mondovi, Wis.
Higgins, John Henry, Minneapolis, Minn.
Hoyde, Anders F. G., Kenyon, Minn.
Hubbard, Frederick George, St. Paul, Minn.
Humiston, Ray, Worthington, Minn.
Irvine, Harry Garfield, Minneapolis, Minn.
Jensen, James C., B. A. '99, Luther College, Spring Grove, Minn.
Johnson, Anders Einar, Minneapolis, Minn.
Juliar, Richard Otto, St. Clair, Minn.
Kaess, Andrew Joseph, New Ulm, Minn.
Klove, Lewis, B. L. '99, Minnesota, Dunbar, Iowa.
Lenfest, John William, Anoka, Minn.
Limburg, Albert M., Hunter, N. D.
Lindstrom, Josephine S., Oberon, N. D.
Lyman, Fred Victor, Caledonia, Minn.
McDonell, William Neil, Detroit, Minn.
Magnusson, Herman Victor, Stark, Minn.
Makinson, Herbert Arthur, Cedarville, Kan.
Mee, Patrick Henry, Gaylord, Minn.
Melby, Benedik, Merrillan, Wis.
Munns, John Francis, Minneapolis, Minn.
Newgord, Julius Girard, Minneapolis, Minn.
Nicholson, Joseph, Strout, Minn.
Nickerson, Bernard S., B. S. '99, Minnesota, Minneapolis, Minn.
Noth, Henry William, Minneapolis, Minn.
Old, Herbert William, St. Paul, Minn.
Pettit, Charles Wesley, Preston, Minn.
Phelan, Richard James, Lake Mills, Iowa.
Rice, George Delos, Adrian, Minn.
Robitshek, Emil C., Minneapolis, Minn.
Rollefson, Carl, Hazel Run, Minn.
Rowe, Olin Wallace, Benton Harbor, Mich.
Russell, Clarence W., Augusta, Wis.
Schacht, Fred E., Elizabeth, Minn.
Schalaben, Henry Oliver, Madelia, Minn.
Schuldt, Fred Carl, Lakefield, Minn.
Shellman, John L., Fergus Falls, Minn.
Staley, John Clarence, Bismarck, N. D.
Sterner, Otto, St. Paul, Minn.
Stimpson, Edward W., Newport, Oregon.
Tilderquist, David L., Vasa, Minn.
Todd, Gilbert D., Minneapolis, Minn.
Voges, Adolph, St. Paul, Minn.
Wethall, Anton G., Minneapolis, Minn.
Whipple, Clarence D., St. Peter, Minn.
Wiger, Nicholas N., River Falls, Wis.
Wilkinson, Stella L., Minneapolis, Minn.

THIRD YEAR—78.

Anderson, Arnt G., Minneapolis, Minn.
Anderson, Walmer L., Minneapolis, Minn.
Belden, George, Spokane, Wash.
Benson, Theodor J., Minneapolis, Minn.
Biederman, Jacob, Somerset, Wis.
Bigelow. Charles Edward, Dodge Centre, Minn.
Bird, Amy, Minneapolis, Minn.
Birnberg, Tobias, St. Paul, Minn.
Blais, Charles, Cohoes, N. Y.
Boeckmann, Egil, St. Paul, Minn.
Brand, William Algernon, Big Stone City, N. D.
Brown, Charles E., Highland, Kan.
Campbell, Lorne A., Waba, Ont.
Campbell, Robert A., Tracy, Minn.
Coffin, Samuel D., Lyndale, Minn.
Coria, Leon, Minneapolis, Minn.
Costello, Thomas James, Graceville, Minn.
Crossette, George Dart, Minneapolis, Minn.
Devine, John Leo, St. Paul, Minn.
Dittman, George C., St. Paul, Minn.
Dix, George Edwin, Rochester, Minn.
Dougherty, Edwin B., Duluth, Minn.
Dougherty, Louis E., Duluth, Minn.
Dunn, John T., Waseca, Minn.
Emmersob, William S., Port Perry, Ont.
Freeburg, Harry M., Charles City, Iowa.
Freeman, Charles D., St. Paul, Minn.
Frost, William S., B. A. '01, Minnesota, Willmar, Minn.
Gaard, Rasmus, Roland, Iowa.
Gallagher, Patrick Joseph, Graceville, Minn.
Gallup, Glen D., Hudson, Wis.
Gates, Chester E., Rochester, Minn.
Gowenlock, Harry Joseph, Barnesville, Minn.
Gunz, Abe Nathan, Minneapolis, Minn.
Higgins, Irving W., Hutchinson, Minn.
Hoffman, Walter Frederick, Minneapolis, Minn.
Hoffman, William F., B. A. '00, Iowa, Sioux Falls, S. D.
Hoidale, Andrew, Dawson, Minn.
Hutchinson, Henry John, Hutchinson, Minn.
Hynes, John E., Winnebago City, Minn.
Johnson, Hans, Willmar, Minn.
Johnsson, Gunlauger F., B. A. '00, Univ. of N. D., Grand Forks, N. D.
Kearney, Percy F., Minneapolis, Minn.
Kelly, Thomas C., Duluth, Minn.
Kiefer, Michael A., Sleepy Eye, Minn.
Klemer, Carl A., Faribault, Minn.
Knutson, Ole, Little Cobb, Minn.
Koren, Harold, B. A. '98, Minnesota, Minneapolis, Minn.
Kuth, Joseph R., Minneapolis, Minn.
Lundmark, Lambert, Cumberland, Wis.
McKibben, Harry E., Webster, S. D.
Mattson, John Albert, Dassel, Minn.
Maurer, Edward L., St. Paul, Minn.
Morey, Charles Berry, Winona, Minn.
Movius, Arthur J., Lidgerwood, N. D.
Nyquist, Jacob E., B. A. '99, Gustavus Adolphus, Hopkins, Minn.
Nickerson, Margaret L., B. A., Smith College, Minneapolis, Minn.
Nickerson, Winfield, S. D. Sc., Yale, Minneapolis, Minn.
Olander, Edwin E., Minneapolis, Minn.
Olson, George, Minneapolis, Minn.
Preisinger, Joseph W., New Ulm, Minn.
Ransom, Edward M., Minneapolis, Minn.
Reynolds, James S., New Hampton, Iowa.
Ribble, George B., B. A., '01, Minnesota, St. Peter, Minn.
Richards, William George, Minneapolis, Minn.
Robbins, Ray P., Sauk Centre, Minn.
Rosen, Samuel, Minneapolis, Minn.
Schulze, Albert G., Duluth, Minn.
Schutt, John P., Minneapolis, Minn.
Tebbitt, Robert L., Minneapolis, Minn.
Thomas, George E., B. A. '01, Minnesota, St. Paul, Minn.
Thomson, Arthur, Minneapolis, Minn.
Titus, William S., Tracy, Minn.
Wallace, Charles J., West Superior, Wis.
Webster, Albert M., B. A., '91, Minnesota, Minneapolis, Minn.
Wheeler, Frederick L., B. A. '01, Minnesota, Minneapolis, Minn.
Willson, Hugh S., Bathgate, N. D.
Williams, Stephen E., River Falls, Wis.

SECOND YEAR—109.

Alley, Albert G., Buffalo, Minn.
Anderson, Carl A., Deer Creek, Minn.
Argue, Hiram Septimus, Bathgate, N. D.
Arneson, Arne O., Beaver Creek, Minn.
Aronsohn, David M., St. Paul, Minn.
Arzt, Phillip G., St. Paul, Minn.
Asbjornson, John G., Grand Forks, N. D.
Ashley, Paul L., St. Cloud, Minn.
Aspelund, Joseph D., Mondovi, Wis.
Austin, Wilford J., Milbank, S. D.

Bartlett, Clayton C., Wycoff, Minn.
Benoit, Frank T., Crookston, Minn.
Benson, Oscar Theodor, Appleton, Minn.
Berg, Sigurd A., Granite Falls, Minn.
Blakely, Clement C., Neenah, Wis.
Brandt, Albert M., Forest City, Minn.
Branton, Berton J., Minneapolis, Minn.
Brigham, Frank T., St. Cloud, Minn.
Brown, J. V., Minneapolis, Minn.
Brown, Paul F., B. A. '02, Minnesota, Pipestone, Minn.
Brush, Fred H., Amboy, Minn.
Bryant, Fern T., Minneapolis, Minn.
Bryant, Oliver P., Minneapolis, Minn.
Burgan, Hoyt P., Milbank, S. D.
Burns, Robert N., St. Paul, Minn.
Campbell, Daniel R., St. Paul, Minn.
Castle, Harry E., Dewey, Minn.
Chambers, Winslow C., B. A. '00, Minnesota, Owatonna, Minn.
Chase, Frank E., Greeley, Iowa.
Chesley, Albert J., Minneapolis, Minn.
Churchill, James Patrick, Minneapolis, Minn.
Collins, Arthur N., B. A. '02, Minnesota, Minneapolis, Minn.
Conley, George T., St. Paul, Minn.
Dawson, Albert M., Minneapolis, Minn.
Durand, Jay I., B. A. '02, Minnesota, Crookston, Minn.
Dyar, Bury A., St. Charles, Minn.
Franzen, Herman G., Minneapolis, Minn.
Frasier, George W., Minneapolis, Minn.
Freeman, George N., Hector, Minn.
Gans, Edward M., St. Cloud, Minn.
Gauger, Edward, St. Paul, Minn.
Goehrs, Henry, Minneapolis, Minn.
Greaves, Jay J., Glencoe, Minn.
Griffin, Miriam E., B. A. '00, Minnesota, St. Paul, Minn.
Hammerel, Ambrose, Minneapolis, Minn.
Harvey, Frederick E., Minneapolis, Minn.
Haugen, Gilbert, Maynard, Minn.
Helland, John W., Minneapolis, Minn.
Hendrickson, John F., B. A. '00, Augsburg, Montevideo, Minn.
Hiebert, John W., Mountain Lake, Minn.
Hilger, Andrew W., St. Paul, Minn.
Hilger, David D., St. Paul, Minn.
Hoyt, John E., Hoyt, Iowa.
Jacobs, Johannes C., Spicer, Minn.
Jacobson, Leonard H., Luverne, Minn.
James, Ralph C., Mankato, Minn.
Johnson, John A., Minneapolis, Minn.
Johnson, Martin A., A. B. '00, Gustavus Adolphus, Duluth, Minn.
Johnson, Nelius J., Mabel, Minn.
Johnson, Nimrod A., Winthrop, Minn.
Johnson, Oscar V., Carver, Minn.
Kane, Joseph P., Minneapolis, Minn.
Kelly, Severin M., Madelia, Minn.
Kibbe, Orel A., Hampton, Iowa.
Klein, Henry N., St. Paul, Minn.
Kranz, Martin, Lake Crystal, Minn.
Kuhlmann, August, Melrose, Minn.
Larson, Leonard A., Minneapolis, Minn.
Larson, Oscar O., B. A. '00, Luther College, New Centreville, Wis.
Ludemann, Alfred H., Buffalo, Minn.
Lynde, Roy, Ellendale, N. D.
McCarthy, Richard I., St. Paul, Minn.
Maschger, Albert P., St. Paul, Minn.
Mathieu, Albert L., Faribault, Minn.
Mathews, Gustav A., Lester Prairie, Minn.
Matthews, Justus Abner, Ortonville, Minn.
Metcalf, James N., Minneapolis, Minn.
Meyer, Ette L., Minneapolis, Minn.
Moir, William W., Minneapolis, Minn.
Morrill, Robert, Byron, Minn.
Nicholson, Elmer, Strout, Minn.
O'Brien, Henry C., St. Paul, Minn.
Parsons, George E., Elk River, Minn.
Pearce, Nay O., Duluth, Minn.
Peterson, Olaus L., Cokato, Minn.
Porter, Olider M., Willmar, Minn.
Pratt, Chelsea Carrol, Minneapolis, Minn.
Ramaley, Louis, St. Paul, Minn.
Rice, Clarence P., Appleton, Minn.
Richmond, Charles D., Windom, Minn.
Riley, Dora P., Minneapolis, Minn.
Rogers, James L., Minneapolis, Minn.
Rothschild, Harold J., St. Paul, Minn.
Rousseau, Victor, French Lake, Minn.
Russell, Herbert, B. A., '00, Minnesota, Minneapolis, Minn.
Seaberg, Simon P., B. A., Carlton, Olivia, Minn.
Smith, Arthur E., Minneapolis, Minn.
Smith, Frank D., Rochester, Minn.
Sogge, Ludwig L., Jackson, Minn.
Thauwald, Charles C., St. Paul, Minn.
Thompson, Albert, Sacred Heart, Minn.
Trutna, Thomas J., Silver Lake, Minn.
Tuohy, Edward L., B. A., '02, Minnesota, Chatsfield, Minn.
Van de Erve, Hubert, Minneapolis, Minn.
Walter, Guy F., Minneapolis, Minn.
Watson, Marsha E., Utica, Minn.
Weishaar, Charles J., Osseo, Minn.
Will, William W., Mapleton, Minn.
Zimmerman, Albert E., St. Paul, Minn.

FIRST YEAR—54.

Abbott, William Pitt, Faribault, Minn.
Ashley, Edward M., Pembina, N. D.
Barrett, Roy F., Minneapolis, Minn.
Bertrom, Harry J., Lake City, Minn.
Bergh, Luther V., Audubon, Minn.
Bray, Edwin R., Biwabik, Minn.
Breda, William G., Minneapolis, Minn.
Buckley, Nathan C., Minneapolis, Minn.
Callerstrom, Gottfried W., Gowrie, Iowa.
Campbell, Otho H., Litchfield, Minn.
Canfield, Harry E., St. Charles, Minn.
Carlsen, Edwin L., Albert Lea, Minn.
Chapman, Winthrop S., St. James, Minn.
Cheleen, Sigfrid J., Rock Island, Ill.
Colp, Donald G., B. D., Yale, Minneapolis, Minn.
Cosgrove, Joseph H., Montevideo, Minn.
Ely, Orriman, West Superior, Wis.
Foster, Binbridge W., Ph. B. '02, Hamline, Hector, Minn.
Freedman, Isaac V., Minneapolis, Minn.
Green, George H., B. A., '00, Minnesota, St. Peter, Minn.
Hagen, Olaf G., M. A., Indiana, Abercrombie, N. D.
Hammes, Ernest M., Hampton, Ia.
Haney, Claude L., Minneapolis, Minn.
Iverson, Anton B., B. A., '02, St. Olaf, El Paso, Minn.
Johnson, Thorald R., Hampton, Iowa.
Jones, Milton B., Minneapolis, Minn.
Knight, Ray R., Minneapolis, Minn.
Lemke, George Frederick, St. Paul, Minn.
Lund, Axel B., Dawson, Minn.
McLaughlin, Jerome E., Granada, Minn.
McMahon, Charles, Adrian, Minn.
Miller, Harry W., Wahpeton, N. D.
Moren, Edward, Minneapolis, Minn.
Nelson, Arne, Willmar, Minn.
Nielson, Niels, Denmark, Minn.
Pederson, Reuben M., Hanley Falls, Minn.
Peters, Le Roy, St. Joseph, Mich.
Peterson, Victor N., Cokato, Minn.
Robison, Vivian R., Windom, Minn.
Rudell, Gustaf L., Winthrop, Minn.
Saboe, John A.
Scott, Ritchie J., Thielman, Minn.
Smith, Fred Le Roy, Sioux Falls, S. D.
Smith, Margaret I., Minneapolis, Minn.
Swanson, Cephas, B. A., '02, Gustavus Adolphus, East Union, Minn.
Tiesberg, Carl B., Ashley, Minn.
Turner, Joseph V., Minneapolis, Minn.
Tyler, Frank A., Brainerd, Minn.
Tyrrell, C. C., B. A., Hamline.
Verharen, Lulu M., Spicer, Iowa.
Verne, Victor N., Minneapolis, Minn.
Vistaunet, Peder, Fargo, N. D.
Witham, Carl A., Rock Elm, Wis.
Yerxa, Edward L., Minneapolis, Minn.

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THE UNIVERSITY OF MINNESOTA

BULLETIN

Vol. VI MAY 20, 1903 No. 9

TABLE OF CONTENTS

The College of Homeopathic Medicine and Surgery

	Page
General Statement	1-8
Faculty	9, 10
Department	11, 12
Rules and Regulations	13-24
Courses of Study	24-27
Courses of Instruction	28-48

The University Bulletins are issued every six weeks during the University year, at least six numbers every calendar year. Entered at the Postoffice in Minneapolis as second-class mail matter.

MINNEAPOLIS, MINN.

The University Bulletins are published by authority of the Board of Regents, six times a year,—every six weeks during the University year. Bulletins will be sent gratuitously, postage paid, to all persons who apply for them. In calling for bulletins, please state department of the University concerning which you desire information. Address

THE REGISTRAR,
The University of Minnesota,
Minneapolis, Minn.

The University

THE UNIVERSITY OF MINNESOTA comprises the following named colleges, schools and departments:

THE GRADUATE DEPARTMENT

THE COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, including—
the School of Analytical and Applied Chemistry

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS

THE SCHOOL OF MINES

THE DEPARTMENT OF AGRICULTURE, including—
the College of Agriculture
the School of Agriculture
the Dairy School
the Short Course for Farmers

THE COLLEGE OF LAW

THE DEPARTMENT OF MEDICINE, including—
the College of Medicine and Surgery
the College of Homeopathic Medicine and Surgery
the College of Dentistry
the College of Pharmacy

The Regents of the University have also entrusted to their charge

THE EXPERIMENT STATION, including—
the Main Station at St. Anthony Park
the Sub-Station at Crookston
the Sub-Station at Grand Rapids

THE GEOLOGICAL AND NATURAL HISTORY SURVEY

THE GRADUATE DEPARTMENT. In each of the colleges, except that of medicine, there are advanced courses of study leading to second degrees. These courses are open to graduates of any reputable college upon presentation of diploma.

In the COLLEGE OF SCIENCE, LITERATURE AND THE ARTS, there is a four-year course of study leading to the degree, bachelor of arts. The work of the first two years is elective within certain limitations as to the range of subjects from which the electives are to be chosen. The work of the last two years is entirely elective. The course is so elastic that it permits the student to make the general scope of the course, classical, scientific or literary, to suit the individual purpose.

The School of Analytical and Applied Chemistry, leading to the degree of bachelor of science (in chemistry), is also organized as a part of this college.

A Summer School for Teachers. A six weeks' course of instruction is offered, in various University subjects, for those whose school duties prevent them from taking the regular University courses.

THE COLLEGE OF ENGINEERING AND THE MECHANIC ARTS offers courses of study, of four years each, in civil, mechanical and electrical engineering leading to the degrees of civil, mechanical and electrical engineer. This college offers a four-years' course of study in science and technology leading to the degree of bachelor of science, with an additional year leading to the engineer's degree in any one of the various lines offered in the college. This college also offers graduate work leading to the degree master of science.

THE SCHOOL OF MINES offers a four-years' course of study in mining and metallurgy upon completion of which the degrees, engineer of mines, and metallurgical engineer, are conferred.

THE COLLEGE OF AGRICULTURE offers a four-years' course in agriculture. The degree of bachelor of agriculture is conferred on completion of the course.

THE SCHOOL OF AGRICULTURE offers a three-years' course of study and is a training school for practical farm life and in domestic economy. The college of agriculture is open to graduates of this school who have completed the fourth year of work required for admission to the college.

The Dairy School offers practical instruction in dairying to those who are actually engaged in the manufacture of butter and cheese.

The Short Course for Farmers is designed to be of the greatest help possible to those actually engaged in farming.

THE COLLEGE OF LAW offers a three-years' course of instruction leading to the degree of bachelor of laws. There is an evening class provided in this college. Graduate work leading to the degrees, master of laws, and doctor of civil law, is offered.

THE COLLEGE OF MEDICINE AND SURGERY and THE COLLEGE OF HOMEOPATHIC MEDICINE AND SURGERY offers four-year courses of study of nine months each. Upon completion of either of the prescribed courses the degree doctor of medicine is conferred.

In the colleges of science, literature and the arts, of medicine and surgery and homeopathic medicine and surgery, there has been established a combined course of six years leading to the degree of bachelor of arts and doctor of medicine.

THE COLLEGE OF DENTISTRY offers a four-years' course of study of nine months each. Upon completion of the prescribed course the degree of doctor of dental surgery is conferred.

THE COLLEGE OF PHARMACY offers a two- or three-years' course of study leading to the degree of pharmaceutical chemist. This college also offers graduate work leading to the degrees, master of pharmacy, and doctor of pharmacy.

SPECIAL COURSES. In each of the colleges, students of an advanced age and adequate preparation, are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

The Board of Regents

The HON. GREENLEAF CLARK, M. A., St. Paul, - - - - 1904
President of the Board

CYRUS NORTHROP, LL. D., Minneapolis, - - - - - - - - *Ex-Officio*
The President of the University

The HON. SAMUEL R. VAN SANT, Winona, - - - - *Ex-Officio*
The Governor of the State

The HON. JOHN W. OLSEN, Albert Lea, - - - - - - *Ex-Officio*
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The HON. THEODORE SCHURMEIER, St. Paul, - - - - 1904

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The HON. A. E. RICE, Willmar, - - - - - - - - - - - 1909

Executive Officers

THE UNIVERSITY

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STEPHEN MAHONEY, B. A., *Purchasing Agent*
E. BIRD JOHNSON, B. S., *Registrar*
D. W. SPRAGUE, *Accountant*

THE COLLEGES

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WILLIAM R. APPLEBY, M. A., *Dean of the School of Mines*
WILLIAM M. LIGGETT, *Dean and Director of Department of Agriculture.*
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ALONZO P. WILLIAMSON, LL. M., M. D., *Dean of the College of Homeopathic Medicine and Surgery*
WILLIAM P. DICKINSON, D. D. S., *Dean of the College of Dentistry*
FREDERICK J. WULLING, PH. G., *Dean of the College of Pharmacy*
FREDERICK D. TUCKER, B. A., *Principal of the School of Agriculture*

LIBRARIES AND MUSEUMS

WILLIAM WATTS FOLWELL, LL. D., *Librarian*
LETTIE M. CRAFTS, B. L., *Assistant Librarian*
INA FIRKINS, B. L., *Library Assistant*
ANNA L. GUTHRIE, B. A., *Library Assistant*
MARY S. MCINTYRE, B. S., *Librarian of School of Agriculture*
THOMAS G. LEE, M. D., *Librarian of Department of Medicine*
HUGH E. WILLIS, LL. M., *Librarian of the College of Law*
CHRISTOPHER W. HALL, M. A., *Curator, Geological Museum*
HENRY F. NACHTRIEB, B. A., *Curator of the Zoological Museum*

ALLEN W. GUILD, *Superintendent of Buildings*
LDWIN A. CUZNER, *Superintendent of Grounds*

The College of Homeopathic Medicine and Surgery sets forth as its peculiar advantages:

First.—That it is an integral part of a great university, fully equipped for the carrying out of its work by the munificence of the state.

Second.—That its students partake of all the privileges accruing from living in a university atmosphere which draws to itself the leaders of thought in all branches of science and literature.

Third.—That the libraries not only of the Medical Department but of the entire university and the cities of Minneapolis and St. Paul are open to those investigating any line of thought.

Fourth.—That the arrangement of work and division of classes is such as to give each student the greatest amount of individual practical work under trained instructors.

Fifth.—The state of Minnesota shows its loyalty to the university by a constant demand for the graduates and the dean has each year requests for physicians to locate in various parts of the state.

Calendar

FIRST SEMESTER.

SEPTEMBER	1.	Registration and assignment of seats.
	2-4.	Entrance examinations, 9 a. m. and 2 p. m.
		Examinations for conditions and advanced standing, 9 a. m. and 2 p. m.
	7.	Opening lecture.
	7-8.	Classification of students.
	9.	Lecture and laboratory courses begin.
NOVEMBER	26.	THANKSGIVING DAY.
DECEMBER	19.	Holiday vacation begins.
	25.	CHRISTMAS DAY.
JANUARY	1.	NEW YEAR'S DAY.
	5.	Work resumed.
	13.	First semester ends.
	14-20.	Mid-year examinations.

SECOND SEMESTER.

JANUARY	21.	Second semester begins.
FEBRUARY	12.	LINCOLN'S BIRTHDAY—Holiday.
	22.	WASHINGTON'S BIRTHDAY—Holiday.
MAY	14.	Second semester ends.
	16.	Final examination begins.
	27.	Annual meeting of the faculty.

COMMENCEMENT WEEK.

SUNDAY,	MAY 29. BACCALAUREATE SERVICE - - - - - 3:00 p. m.
MONDAY,	MAY 30. SENIOR CLASS EXERCISES—Announcement by class.
TUESDAY,	MAY 31. Closing address to the College of Medicine and Surgery.
WEDNESDAY,	JUNE 1. ALUMNI DAY.
THURSDAY,	JUNE 2. COMMENCEMENT DAY—The Thirty-second Annual Commencement.
	Graduating Exercises - - - - - - - - - - 9:00 a. m.
	Alumni Banquet and President's Reception, - 1:00 p. m
FRIDAY,	JUNE 3. SUMMER VACATION BEGINS.

The Faculty

CYRUS NORTHROP, LL. D., *President.*

ALONZO P. WILLIAMSON, LL. M., M. D., *Dean and Professor of Mental and Nervous Diseases and Medical Jurisprudence.*
Pillsbury Building, Minneapolis.

WILLIAM E. LEONARD, A. B., M. D., *Professor of Materia Medica and Therapeutics.*
Andrus Building, Minneapolis.

GEORGE E. RICKER, A. B., M. D., *Professor of Clinical Medicine and Physical Diagnosis.*
Syndicate Building, Minneapolis.

ROBERT D. MATCHAN, M. D., *Professor of Principles and Practice of Surgery.*
Masonic Temple, Minneapolis.

A. E. COMSTOCK, M. Sc., M. D., *Professor of Principles and Practice of Surgery.*
New York Life Building, St. Paul.

WARREN S. BRIGGS, B. S., M. D., *Professor of Clinical and Orthopaedic Surgery.*
Ernst Building, St. Paul.

B. HARVEY OGDEN, A. M., M. D., *Professor of Obstetrics.*
Ernst Building, St. Paul.

EUGENE L. MANN, A. B., M. D., *Professor of Diseases of Nose, Throat and Ear.*
Endicott Arcade, St. Paul.

FREDERIC M. GIBSON, M. D., O. et. A. Chir., *Professor of Ophthalmology.*
Pillsbury Building, Minneapolis.

GEORGE E. CLARKE, Ph. B., M. D., *Professor of Theory and Practice of Medicine.*
Stillwater, Minn.

GEORGE F. ROBERTS, M. D., *Professor of Diseases of Women.*
Pillsbury Building, Minneapolis.

ROBERT R. ROME, M. D., *Professor of Diseases of Women.*
900 22nd Avenue South, Minneapolis.

HARRY M. LUFKIN, M. D., *Professor of Diseases of Children.*
Germania Life Building, St. Paul.

OSCAR H. HALL, M. D., *Professor of History and Methodology of Medicine.*
Ernst Building, St. Paul.

CHARLES A. ERDMANN, M. D., *Professor of Anatomy.*

RICHARD O. BEARD, M. D., *Professor of Physiology.*

THOMAS G. LEE, B. S., M. D., *Professor of Histology and Embryology.*

F. F. WESBROOK, M. A., M. D., C. M., *Professor of Bacteriology and Pathology.*

RALPH ST. JOHN PERRY, LL. D., M. D., *Lecturer on Skin and Genito-Urinary Diseases.*
Farmington, Minn.

A. E. BOOTH, M. D., *Lecturer on Surgical Emergencies.*
Andrus Building, Minneapolis.

O. K. RICHARDSON, B. S., M. D., *Lecturer on Life Insurance Examination.*
Masonic Temple, Minneapolis.

HUGH J. TUNSTEAD, M. D., *Lecturer on Clinical Obstetrics.*
829 16th Avenue North, Minneapolis.

EDWARD M. FREEMAN, B. S., *Instructor in Botany.*
FRED S. BECKLEY, M. D., *Assistant in Diseases of Women.*
Merriam Park, St. Paul.
ETHEL S. HURD, M. D., *Assistant in Ophthalmology.*
Pillsbury Building, Minneapolis.
ANNAH H. HURD, Phm. D., M. D., *Assistant in Ear, Throat and Nose.*
Pillsbury Building, Minneapolis.
PAUL A. HIGBEE, A. B., M. D., *Assistant in Surgery.*
Masonic Building, Minneapolis.
WILLIAM B. ROBERTS, A. B., M. D., *Assistant in Surgery.*
Pillsbury Building, Minneapolis.
DAVID W. HORNING, A. B., M. D., *Assistant in Practice of Medicine.*
Pillsbury Building, Minneapolis.
MARGARET KOCH, M. D., *Assistant in Paedology.*
Masonic Temple, Minneapolis.
*HIRAM H. BINGHAM, M. D., *Assistant in Medicine.*

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*Deceased.

The Department of Medicine

The Department of Medicine Includes the Following Named Colleges:

The College of Medicine and Surgery.
The College of Homeopathic Medicine and Surgery.
The College of Dentistry.
The College of Pharmacy.

Each college is distinct in the government of its internal affairs, has its own faculty and an independent curriculum, excepting in the studies of anatomy, physiology, chemistry, histology and embryology. These studies, so far as they are required in each course, are pursued by all the students of the department in common.

BUILDINGS AND EQUIPMENT.

The department is resident in four buildings situated upon the University campus, viz: Medical hall, the laboratory of medical science, the laboratory of chemistry and the laboratory of anatomy.

Medical hall contains the offices of the deans of the college of medicine and surgery, of the college of homeopathic medicine and surgery and of the college of dentistry; the large amphitheatre and lecture rooms of the several colleges, the library and reading room of the department, the laboratory of materia medica, the operating rooms and laboratories of dentistry and the dental infirmary.

The laboratory of medical sciences is a building especially designed for laboratory uses. One wing of the building is occupied by the college of pharmacy and the department of physiology. It contains the office and private laboratory of the dean of the college of pharmacy, the pharmaceutical and botanical laboratories, the laboratory of organic chemistry, with preparation and stock rooms. The office of the secretary of the college of medicine and surgery, a large lecture amphitheatre, especially arranged for demonstrative work, the laboratories of physiology, physiologic chemistry and practical dietetics, and operative surgery are also situated in this wing.

The center and opposite wing are occupied by the departments of histology and embryology, pathology and bacteriology. Each of these branches has its well-lighted laboratories, preparation rooms and private study rooms.

Upon the basement floor are laboratory stock rooms and the animal rooms devoted to physiologic and bacteriologic purposes.

A large laboratory upon the first floor is assigned to the bacteriological work of the State Board of Health.

The laboratory of chemistry is a one-story brick building devoted entirely to the use of this department. It is equipped with amphitheatre, laboratories, preparation rooms, store rooms, and private offices of the professor and assistant professor of chemistry.

The laboratory of anatomy is a new two-story and basement building, 35x 60 feet. In the basement are the morgue, injecting room, cold storage vaults, and engine and apparatus for the carbon dioxide freezing plant. On the first floor are an amphitheatre seating one hundred and seventy-five students, the private offices of the professors and instructors, a private dissecting room and a small laboratory for research work. The entire second floor is devoted to laboratories for practical work in anatomy.

The legislature has provided for the erection of a new building for the laboratories of bacteriology and pathology, which will be built within the next two years. The retirement of these laboratories from the present medical science building will leave enlarged room for the accommodation of the remaining chairs.

The University Clinical Building is situated in a part of the city most favorable to the development of an out-door service and, at the same time, accessible to the students. It is of two stories and covers 40x150 feet. It affords ample floor space for amphitheatres, waiting rooms, dispensary and class rooms for each of the clinical branches. Wards and laboratories, in which section work in medical and surgical diagnosis can be conducted, have been equipped.

The department of medicine is in intimate relationship, through its several faculties, with the hospitals, infirmaries and dispensaries of the cities of Minneapolis and St. Paul. Through these agencies it utilizes, for the benefit of its students, the clinical material of these two large centers of population. The location of the University near the interurban car line enhances the value and convenience of these clinical opportunities.

A medical library, containing some three thousand volumes and supplied with current periodicals, is open to all the students of the department. The collection has been chosen with special regard to the need for reference work and collateral reading. The general library of the University and the public and medical libraries of Minneapolis and St. Paul are also open to the students of this department.

Rules and Regulations of the College

COLLEGE YEAR.

The sixteenth annual course of study in this department will begin on September 1st, 1903, and will continue nine months. closing upon the first Thursday in June, 1904.

The college year is divided into semesters; the first semester ending January 13th, 1904. The succeeding week will be devoted to mid-year examinations which will be conducted in many of the departments. The second semester will begin January 21st, 1904, and will close May 14th, 1904, when the final examinations of the year will begin. Commencement exercises will occur in common with the other departments of the University, during the week ending June 3rd. 1904.

ENROLLMENT.

It is desirable that students matriculate on or before September 1st.

Students will be assigned seats in order of and at the time of their matriculation. Such matriculation and assignment of seats will be had in the office of the registrar of the University. Students will then present themselves for entrance examination, or for the approval of their evidences of preliminary qualifications, to a committee of the college of science, literature and the arts appointed for this purpose. Having received an entrance certificate from this committee they will report to the dean and secretary of the college for admission and classification. They will then be furnished with a record of their standing and of the studies to be taken and they will be required to present this record to the professors in charge of such studies within the first week of the term.

REQUIREMENTS FOR ADMISSION.

HIGH SCHOOL REQUIREMENTS.

Applicants for admission to the College of Homeopathic Medicine and Surgery of the University of Minnesota, must present to the dean of this college, credentials properly signed, showing that the applicant has satisfactorily completed the branches of study, covered in a full four years' high school course and, in addition, the branches covered in the freshman year of some approved college or university, according to the conditions herein stated.

The applicant who cannot present credentials must submit to an examination on the subjects, given in the schedule, herewith submitted, for which he has no credentials.

English Language. (*a*). English Composition and Rhetoric.

Candidates are expected to show a familiarity with the principles and technical terms in ordinary high school texts upon the subject, whether acquired by the direct study of such texts or mainly by the study of selected English masterpieces. It should not be forgotten that the main purpose of this subject is to teach the student to use language correctly and forcibly. To this end students should be given constant exercise in composition writing. A knowledge of the subject matter of the texts used will be considered of less importance than the demonstration of ability to write good English.

A full year of work in the high school, five hours per week, should be devoted to this subject.

Mathematics (*a*). Algebra, elementary (one year).

Addition, subtraction, multiplication, division, factoring, highest common divisor, lowest common multiple, fractions, simple equations (with one, two, and several unknown quantities) followed by problems, theory of exponents, involution (including the binomial theorem for positive integral exponents), evolution, radical inequalities, ratio, proportion, progression, and quadratic equations with problems.

Geometry (*b*). Plane (one year).

Any of the standard texts on this subject will furnish the necessary preparation. Isoperimetry, symmetry, and maxima and minima of figures are not required. The exercises requiring solutions and demonstrations should not be omitted.

Latin (*a*). Grammar (one year).

Will include the subjects of orthography, etymology and syntax. Proficiency is particularly desired in the following subjects: the analysis of the verb forms, the rules of syntax, and the principal parts of the irregular verbs.

(*b*) Cæsar, 4 books (one year).

First four books, or selections from the seven books equivalent to four; or three books, with thirty pages of Cornelius Nepos, or two books with sixty pages of Cornelius Nepos. Special attention should be paid to the translation of passages of the text into correct and idiomatic English; grammatical questions connected with the text; more especially on the subjunctive mood, indirect discourse and the sequence of tenses. The pupil should be able to rewrite in oratio recta all the passages of oratio obliqua that occur in the text. The student is expected to be familiar with the life of Caesar and an account of his wars.

In addition to the above named subjects, which are required, and for which substitutes can not be accepted, applicants shall present evidence of preparation in *seven year-credits,* or their equivalent, to be chosen from the following list:

Latin—Cicero, four orations, one year; Vergil, six books, one year.

Greek, two years—Grammar, one year; Anabasis, four books, one year.

German, two years—Grammar, one year; Literature, one year.

French, two years—Grammar, one year; Literature, one year.

Spanish, two years—Grammar, one year; Literature one year.

English—Latin element, one year; Literature, one year.

History—Greece and Rome, one-half year; England, one-half year;

Modern, one-half year; Medieval, one-half year; Senior American, one-half year.

Civics—One-half year.
Political Economy—One-half year.
Physics—One year.
Chemistry—One year or one-half year.
Botany—One-half year or one year.
Zoology—One-half year or one year.
Astronomy—One-half year.
Geology—One-half year.
Physiography—One-half year.
Solid Geometry—One-half year.
Higher Algebra—One-half year.

ADDITIONAL COLLEGE WORK REQUIRED.

In addition to the foregoing high school requirements for admission to the University of Minnesota, applicants for entrance to the College of Homeopathic Medicine and Surgery shall present evidence of having completed one year's work in a recognized college or university course. The following schedule presents the work of the first year in the college of science, literature and the arts. Applicants who have credit for one year of college work but whose credits do not evidence such a course or its fair equivalent, will be permitted to enter but must make up such deficiencies during the first year in the college of science, literature and the arts.

1. *Mathematics*—A full year of college work, four recitation periods per week, including the subjects of higher algebra or plane trigonometry.

Higher algebra, including simple equations, inequalities, proportion, variation, progression, quadratic equations, simultaneous equations of the second degree, maxima and minima of functions, differentiation of algebraic functions, development of functions, logarithms, theory of equations and solution of numerical higher equations.

Plane trigonometry, with numerous applications.

2. *Language*—One full year of college work, four recitation periods per week, in *one* of the following:—English, early English, including Chaucer and Spenser, Rhetoric, including some Shakespere and practice in writing; Latin, one year of college work, in advance of four years' work required for admission.

ENGLISH LANGUAGE AND LITERATURE.

Course I. (a) Chaucer, (b) Spenser.

Course II. Rhetoric.

This course includes two hours a week of rhetoric, the writing of compositions, and the study of prose masterpieces, and two hours a week of the study of Shakspere's plays.

LATIN.

Course I. Cicero de Amicitia and de Senectute.
Exercises in Latin composition and a review of the syntax.
Course II. Livy.
Selections from Livy and one play of Plautus or Terence; rise and development of Roman institutions.

3. *Language*—One full year of college work, four recitation periods per week, in *one* of the following:—

German, 1st or 3rd year's work in the subject.
French, 1st or 3rd year's work in the subject.
Greek, 1st or 3rd year's work in the subject.

GERMAN.

Course I. German begun.
(a) Whitney's Brief German Grammar, Bernhardt's German composition and Buchheim's German Poetry.
(b) German prose selections. Leander's Traumerein, Heyse's L'Arrabbiata, von Hillern's Hoher als die Kirche; grammar and composition completed.
(c) Scientific prose. Hodge's German Science Reader; grammar and composition completed.
Or Course III. Advanced classic prose and poetry.
(a) Goethe's Prosa and Gedichte, author's life and works, Spanhoofd's Deutsche Grammatik. Oral and written exercises based on text.
(b) Schiller's Belagarung von Antwerpen, Heine's Prosa and Buch der Lieder, life and works of the author.
(c) Brandt & Day's German Scientific Reading, Spanhoofd's Deutsche Grammatik completed, original letters and essays.

FRENCH.

Course I. French begun.
De Borde's Elements of French; Kuhn's French Reader; modern plays.
Or Course II. Advanced grammar and composition.
Fasnacht's Progressive French Course.
Paul Bercy's Selections for Translating English into French. The classical authors of the XVII and XVIII centuries will be read. Fortier's Histoire de la Litterature Francaise.

GREEK.

Course I. Greek begun.
Brook's Introduction to Attic Greek.
Course II. Anabasis.
Prose composition based on the text.
Course III. Xenophon's Memorabilia.
Prose composition based on the text; collateral readings in history.
Course IV. Lysias and Demosthenes.
Prose composition based on the text; collateral readings in history antiquities.

4. *Science*—One full year of college work, four recitation periods per week, and four hours of laboratory work, in *one* of the following:

Botany.
Chemistry.
Zoology.

BOTANY.

Course I. General botany.

This course comprises a general survey of the plant kingdom with laboratory work on the cell, on the algae, lichens, fungi, mosses and ferns, gymnosperms and flowering plants. Lectures and laboratory work.

Or Course II. General plant morphology. First year.

This course comprises a thorough laboratory discipline in algae, fungi and lichens, and is the introductory course for students specializing in botany. Lectures, laboratory work and collateral reading throughout the year.

CHEMISTRY.

Course I. (a) General chemistry.

Lectures and laboratory work. The course includes a detailed study of the chemical and physical properties of the non-metals and their more important compounds.

(b)

Lectures and laboratory work. A continuation of course (a) with an introduction to organic chemistry.

ANIMAL BIOLOGY.

Course I. General zoology. "Short course" or first year of the "long course." Text-book, lectures, quizzes and laboratory work.

The course includes the elements of entomology, a general survey of the phyla of the animal kingdom and the elements of embryology. A collection of identified insects is required of each student.

A student may enter with two conditions in the foregoing entrance requirements, but must remove these conditions by the close of the first year. Blanks for certificates of credentials may be had upon application at the Dean's office.

N. B.—In September, 1905, *the sophomore course in an accredited college or university, or its equivalent in satisfactory examinations upon the subjects of the course, will be added to the foregoing requirements for entrance to this college.*

CONDITIONS.

Examinations of conditioned students and of applicants for advanced standing, in the studies of the first, second and third years, will be held during the first week of the semester. In the primary branches they occur upon the following dates:

September 3, 9 a. m. Anatomy, first year; Physiology, second year.

September 3, 2 p. m. Histology, first year; Chemistry, second year.

September 4, 9 a. m. Physiology, first year; Anatomy, second year.

September 4, 2 p. m. Chemistry, first year; Histology, second year.

Conditions may also be removed at the close of each semester.

No student will be eligible to final examinations in any branch who carries conditions of a previous year of that branch unremoved.

No student will be admitted to the fourth year who is conditioned in any of the studies of the first and second years.

Students who carry conditions into a succeeding year may find a resultant conflict of study hours. In that event they will give preference to the unfinished studies of the lower conflicting course.

CLASSIFICATION.

September 7th and 8th will be devoted to the classification of students. The opening lecture of the course will be delivered at 8 p. m., September 8th.

STANDING.

The standing of students is determined by the results of recitations, written examinations and laboratory work. It is indicated by the terms "passed" or "conditioned." Conditions may be removed as indicated above. Incomplete work must be made up before the final examinations of the following year.

Students must pass a majority of the studies of their year in order to classify in the next succeeding year.

Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarship may subject the student to temporary or permanent suspension.

ADVANCED STANDING.

Applicants for advanced standing must pass the entrance examinations or present the usual equivalents. They must furnish satisfactory evidence of time spent and subjects covered in previous professional studies and must present themselves at the above dates and pass the examinations in all branches in which they wish to be exempt.

No conditions of advanced standing will entitle the student to take the two years of any graded study coincidently.

Students will not be permitted to substitute private work in any branch for the regular college course work, excepting in the case of actual laboratory exercises done under the direct supervision of an instructor appointed by the chair and approved by the faculty. Examinations in such private laboratory work will be conducted by the chair. This rule does not apply to conditioned students.

Seniors in the college of science, literature and the arts, who contemplate entering the department of medicine, are permitted to elect courses in anatomy, histology and embryology, physiology and chemistry in this department in lieu of similar science courses in the college of science, literature and the arts. Since the medical practice act of this State requires four full years of medical study, these students must elect this work in the

department of medicine, in order that it may be contributive toward the degrees given in both colleges.

ATTENDANCE.

Students are required to attend four-fifths of the lectures in each course. This rule is not intended for the benefit of those who seek admission after the opening of the college year, but is designed to cover cases of sickness or unavoidable absence. It does not apply to laboratory courses which must be taken in full and must be entered, invariably, during the first week in which they begin.

TERMS OF TUITION.

The college of homeopathic medicine and surgery has adopted a system of annual fees, in which are included all charges for matriculation, lecture courses, laboratory courses, dissections and graduation, except a rental fee for microscopes.* These level fees are as follows:

For the first year	$100.00
For the second year	100.00
For the third year	80.00
For the fourth year	80.00

One-half of the annual fee will be payable when the student matriculates. The accountant's receipt for this portion of the fee will entitle the holder to take the entrance examinations and to classify. The second half will be payable at the opening of the second semester, January 21, 1904. If the applicant fails to pass the entrance examination, his fees will be returned by the accountant. Absence or failure to continue study will not entitle the student to return of fees, excepting in cases of special hardship, when application may be made to the executive committee of the Board of Regents.

A student who takes advanced standing will receive only a credit of five dollars upon his annual fee per semester of each laboratory course from which he may be exempt.

Students who are conditioned and fail to remove their conditions within one year shall be charged an extra examination fee.

Senior conditioned students who re-enter for work in any succeeding year will be charged a matriculation fee of ten dollars.

BREAKAGE AND LOSS.

In each laboratory course the student will be assigned a certain amount of apparatus and material, for which he will give a receipt.

For apparatus and material attaching to his laboratory desk he will also be held responsible. At the end of each course, if such apparatus and material are restored in good condition, this receipt will be returned to him.

A deposit of five dollars will be made with the accountant each year, by every student, at the time of enrollment as *a caution fee.* This fee is intended to cover the cost of unnecessary damage in the college buildings and of breakage and loss of laboratory apparatus and materials. It will be returned to the student at the close of each year, minus the cost of articles assigned to him, which are not returned in good condition, or of damage to college property for which he is individually responsible. If responsibility for such damage cannot be individually fixed, a pro rata charge upon all students will be made.

*In each semester a fee of $2.00 to $4.00 will be charged for the rental of a microscope in each course in which its use is required, provided the student is not supplied with a satisfactory instrument of his own. It is an advantage for the student to possess a microscope.

SPECIAL STUDENTS.

Special students will pay to the accountant a fee of twenty dollars per year for each study they elect to pursue. They will be charged fees, varying from five to twenty dollars, for each laboratory course they may enter.

Graduate students will pay an admission fee of ten dollars which will entitle them to attend any lectures they may desire in regular courses.

CURRICULUM.

The course in the college of homeopathic medicine and surgery leads to the degree of doctor of medicine. It covers a period of four years of collegiate study, each year representing nine months in actual residence.

The studies are graded, so far as practicable, throughout the four years and this grading is arranged with careful reference to the relation which the subjects naturally bear to each other.

The work of the first two years deals with the so-called scientific or laboratory branches; while that of the last two years includes the principles and practice of medicine and surgery, their associated specialties and the application of scientific or laboratory methods to clinical experience.

DEGREES.

The degree of doctor of medicine is conferred by the Board of Regents upon students who are recommended, by vote of the faculty, for graduation.

Candidates for the degree must possess the following essential qualifications:

(1) Twenty-one years of age and upwards.

(2) Good moral character.

(3) A degree of preliminary education equivalent to that demanded by the examination for entrance to this college.

(4) Four full college years spent in the study of medicine; the fourth year, at least, in this university, and the remainder in this or some other recognized college of medicine.

(5) Satisfactory examination passed in all branches in accordance with the foregoing rules.

ANNOUNCEMENT.

The College of Homeopathic Medicine and Surgery offers special advantages to students seeking a medical education. Through the generosity of the state, an equipment of buildings, laboratories and apparatus is provided, equal to that of the best medical schools in this country or in Europe. With this equipment it is possible to lay that broad foundation for a medical education without which no physician can hope for the highest success. An institution deficient in the requirements for teaching the fundamental branches of medical practice cannot long maintain the confidence of the medical profession. Homeopathy, as an expanding science, draws toward itself as a part of its rightful possession, every addition to medical knowledge that can be of any service in the cure of the sick. The homeopathic physician should feel that he is "heir of all ages" in medical learning, having that catholicity of training which places at his command every known resource, including as his especial advantage, the added power of coping with disease, that comes from his knowledge of the science of homeopathy.

The breadth of view this result is provided in the college of homeopathic medicine and surgery in a real university course, botany, chemistry (organic or inorganic), histology, embryology, bacteriology, pathology, anatomy, physiology, hygiene and sanitary science, with all the accessories of laboratory work; second, in building upon this foundation a comprehensive knowledge of therapeutics, practice and surgery. The student has daily training in both the practical and theoretical aspects of medicine. In the first two years the practical training is provided in constant individual work in the laboratories of dissecting rooms; in the last two is a broad field of clinical study and observation, in both medical and surgical cases, which the nearly one-half million population of the Twin Cities abundantly supplies. The theoretical work is carried on in daily didactic lectures and text-book study throughout the entire course.

Special emphasis is placed upon clinical instruction in both dispensary and hospital practice. Senior students have the opportunity to attend out-door patients, assist in special and general operations, and to attend obstetrical cases during the last course of lectures.

The college alumni now in practice are evidence of the character of its work. The loyal support of the profession throughout the north-

west has encouraged and upheld the faculty in giving form to this new phase of the work.

The college proposes to stand for a broad catholic, scientific, and therefore, homeopathic, education in medicine and surgery.

EXAMINATIONS.

Examinations will be conducted at the end of each year, upon subjects taught during the year, according to the schedule printed elsewhere. Attendance upon at least four-fifths of the lectures under each department is required in order that a student may be allowed to enter for final examination, or to receive a certificate of attendance. Ten per cent of the graduating class will be recommended to receive the degree of doctor of medicine, "cum laude." The selection will be based upon the efficiency of the work of the student during the period of the entire course.

CLINICS.

Every member of the faculty (with two exceptions) is a clinical teacher. Thus each professor demonstrates the application of his didactic work.

DISPENSARY CLINICS.

The dispensary, located at 1808 Washington avenue south, offers unusual facilities to the student for individual examination of patients. The location is within easy access of those whose means compel them to ask dispensary assistance, and presents ample opportunity for the study of all forms of disease usually met with in practice. Patients present themselves in large numbers daily (more than six thousand prescriptions having been made during the past year), and are assigned to particular departments according to the nature of their diseases. The classes are so divided and arranged as to afford every student abundant opportunity to familiarize himself with the best methods of diagnosis and treatment of the various maladies, medical and surgical, with which the clinic abounds. Each student is assigned for a definite period as clinical assistant in each department of the clinic. The college clinics are conducted throughout the entire year. Students and practitioners are invited to attend them at all times.

DISPENSARY CLINICS.

SUBSECTS.	CLINICIAN.	DAYS IN ATTENDANCE.	HOURS.
Diseases of Women	Dr. F. L. Beckley	Monday	1 to 2
	Prof. R. R. Rome	Thursday	1 to 2
Nervous Diseases	Prof. Williamson	Monday	1 to 2
Diseases of the Eye	Prof. Gibson,	Tuesday and Saturday	1 to 2
	Dr. E. E. Hurd		1 to 2
Diseases of the Skin	Dr. R. St. J. Perry	Tuesday	1 to 2
Diseases of the Nose, Throat and Ear	Prof. Mann	Wednesday & Sat'day	1 to 2
	Dr. Annah Hurd		
Obstetrics	H. J. Tunstead	Wednesday	1 to 2
Surgery	Dr. W. B. Roberts	Monday	1 to 2
	Prof. Matchan	Tuesday	1 to 2
	Dr. P. A. Higbee	Wednesday	1 to 2
	Dr.	Thursday	1 to 2
	Dr. Booth	Friday	12 to 1
	Prof. A. E. Comstock	Saturday	1 to 2
Internal Medicine		Monday	1 to 2
	Dr. P. A. Higbee	Tuesday	1 to 2
	Dr. W. B. Roberts	Thursday	1 to 2
	Prof. Ricker	Friday	1 to 2
Diseases of Children	Dr. D. W. Horning	Saturday	1 to 2
	Dr. H. J. Tunstead	Tuesday	1 to 2
	D. Margaret Koch	Thursday	1 to 2
	Prof. Lufkin	Saturday	1 to 2

HOSPITAL CLINICS.

The college has unusual advantages in hospital clinics. In addition to calling upon students to assist the various professors in private cases regular clinics are provided in the city hospitals of both St. Paul and Minneapolis, and in St. Luke's and St. Joseph's Hospitals in St. Paul. Each Monday is devoted to clinics held in one of these hospitals by members of the faculty.

CITY HOSPITAL, MINNEAPOLIS.

The faculty of the college of homeopathic medicine and surgery is largely represented on the staff of this institution, where one-fifth of all the patients admitted are placed under care.

CITY HOSPITAL, ST. PAUL.

This hospital likewise has a full staff of homeopathic physicians and surgeons which includes all the St. Paul members of the college faculty. Each member of the staff has full charge of all cases coming into his department during his term of service and uses suitable ones for clinical purposes.

ST. LUKE'S HOSPITAL, ST. PAUL.

This hospital has recently erected a new building thoroughly equipped with all modern facilities for caring for medical and surgical cases. It contains an ampitheater in which clinical lectures are delivered. A number of the faculty are members of the visiting staff.

ST. JOSEPH'S HOSPITAL, ST. PAUL.

Through the addition to its staff of members of the college faculty, students have access to both surgical and medical cases upon exactly the same footing as the other hospitals.

HOSPITAL APPOINTMENTS.

Graduates of this college are eligible for appointment to the position of interne in the Minneapolis City, St. Paul City and County Hospitals and St. Joseph's Hospital, St. Paul. Also to the staff of the State Hospital for Insane at Fergus Falls.

GENERAL REMARKS.

In all hospital work students are given special bedside instruction in diagnosis, in "taking the case," in prescribing, in surgical dressing, in the after care of patients and all forms of accessory treatment.

Course of Study

The extension of the course of instruction to four years enables the faculty to present to the students a more thorough and practical training in the practice of medicine than has heretofore been possible. The schedule of study is so arranged that the student reaches the practical work of his profession by gradual steps through theoretical and laboratory course. There are also offered lectures upon subjects which have been omitted in previous years, because of lack of time.

FIRST YEAR.

History and methodology of medicine.
Medical terminology.
Medical botany.
Inorganic chemistry—laboratory.
Anatomy—bones, muscles and joints.
Physiology.
Homeopathic pharmacy.

SECOND YEAR.

Materia medica—experimental.
Organic chemistry—toxicology and urinalysis.
Histology and embryology—laboratory.
Anatomy, dissection.
Physiology—chemical and experimental.
Surgical emergencies and bandaging.
Bacteriology.
General pathology.

THIRD YEAR.

Surgical anatomy.
Materia medica and therapeutics.
Practice of medicine, organon and institutes of medicine.
Clinical medicine and physical diagnosis.
Obstetrics.
Principles and practice of surgery.
Diseases of women.
Ophthalmology.
Nose, throat and ear.
Medical jurisprudence.
Clinics, medical and surgical.
Special pathology.

FOURTH YEAR.

Surgical pathology.
Materia medica and therapeutics.
Practice of medicine.

Clinical medicine.
Mental and nervous diseases.
Dermatology and genito-urinary diseases.
Obstetrics.
Clinical obstetrics.
Principles and practice of surgery.
Ophthalmology.
Diseases of women—didactic and practical.
Orthopædic clinical surgery.
Pædology.
Electro therapeutics.
Life insurance examination.
Clinics, medical and surgical.

SIX YEARS' COURSE.

With the season of 1903-04, the University will offer a six years' course of study in the colleges of science, literature and the arts and of medicine and surgery which will lead to the degree of bachelor of arts at the end of four years' course, and doctor of medicine at the end of six years' course. Students who intend to pursue the study of medicine are especially urged to enter this course, the subjects of which have been planned for their best equipment.

An outline of this course follows:

FIRST YEAR.

1. *Rhetoric,* two hours each week throughout the year.
2. **German,* four hours each week throughout the year, grammar and literature.
3. *Botany,* four hours each week throughout the year.
4. *Chemistry,* four hours each week throughout the year.
5. *Zoology,* four hours each week throughout the year.
6. *Plane Trigonometry,* four hours each week for twelve weeks of second semester.

**Note.*—Students who enter with two years of German may elect French in its stead in the first and second years.

SECOND YEAR.

1. *Rhetoric,* two hours each week throughout the year.
2. *German,* classical and scientific, four hours each week throughout the year.
3. *Chemistry,* four hours each week throughout the year.
4. *Comparative Anatomy of Vertebrates,* four hours each week throughout the year.
5. *Physics,* four hours each week throughout the year.

THIRD YEAR.

1. *Human Anatomy,* as outlined in Courses I, II, III and IV, department of anatomy, college of homeopathic medicine and surgery.
2. *Histology and Embryology,* as outlined in Courses IV and V, department of histology and embryology, college of homeopathic medicine and surgery.
3. *Medical Chemistry,* including organic chemistry, toxicology, urinalysis and sanitary chemistry, etc.
4. *Physiology,* as outlined in Courses I and II, department of physiology, college of homeopathic medicine and surgery.

5. *Materia Medica,* as outlined in present courses in the college of homeopathic medicine and surgery.
6. *Pharmacy.*
7. *History and Methodology of Medicine.*

FOURTH YEAR.

1. *Human Anatomy,* as outlined in Courses v and vi, department of anatomy, college of homeopathic medicine and surgery.
2. *Histology and Embryology,* as outlined in Courses iii and iv, department of histology and embryology, college of homeopathic medicine and surgery.
3. *Medical Chemistry,* courses continued as outlined in third year.
4. *Physiology,* as outlined in Courses iii, iv and v, department of physiology, college of homeopathic medicine and surgery.
5. *Therapeutics,* as outlined in present courses in the college of homeopathic medicine and surgery.
6. *Bacteriology, and General Pathology* as outlined in Courses i and ii, department of pathology and bacteriology, college of homeopathic medicine and surgery.
7. *Materia Medica.*
8. *Surgery and Bandaging.*

FIFTH AND SIXTH YEARS.

The work of the fifth and sixth years will be essentially the same as is given in the third and fourth years in the college of homeopathic medicine and surgery.

Course of Instruction

MATERIA MEDICA AND THERAPEUTICS.

This course upon this subject is graded to cover four years' study. Lectures, daily quizzes and daily demonstrations of materials and methods are held regularly throughout the year.

FIRST YEAR.

Ten lectures in the first half of the year are given upon the methods of homeopathic pharmacy, each student being trained in writing and filling prescriptions and the technique of the more common preparations. Apparatus and material for these purposes are taken from Professor Leonard's laboratory, which is abundantly supplied with the crude and perfected drugs for demonstration throughout the course. Mr. G. A. Babendrier, who has kindly given this instruction so satisfactorily for several years, will continue the same the coming year.

SECOND YEAR.

The toxicological and physiological action of a few typical drugs will be studied in lectures and quizzes twice each week; including the action of both large and small doses as well as the official doses (U. S. P.) of the leading drugs and their alkaloids. Here, in the more detailed study of a few drugs, the groundwork will be laid for the comprehension of the symptomatology of the later years.

When practicable, actual experiments on the effects of the drugs upon individual persons in the class will be made, the blanks used and methods being under Professor Leonard's personal supervision and in accordance with the rules of the Provers' Union of the American Institute of Homeopathy.

THIRD YEAR.

Three lectures a week with quizzes, upon the vegetable remedies, about thirty major and seventy-five minor drugs, arranged according to their natural groups and their clinical relationship in diseases, and studied in their origin, history, preparation, physiology and symptomatology, full practical comparison being made with other allied remedies. The endeavor on these studies and those of the following year will be to present only such usage of drugs as is practical and fully corroborated.

FOURTH YEAR.

Three lectures and quizzes each week upon the mineral, animal and nosological remedies of materia medica—about forty major and twenty minor drugs grouped and studied in detail as those of the second year, attention being given to their toxicological and physiological action, where this has a direct bearing upon their homeopathic application to chronic diseases, inasmuch as the drugs of this course are more often applied thereto.

Examinations in the form of written review quizzes from time to time or at the end of the term, will be held, the student's final standing being made up of this and his daily quiz markings.

TEXT-BOOKS AND COLLATERAL READINGS.

Materia Medica and Therapeutics.

First year—

Pharmacopea of the American Institute of Homeopathy.

Second year—

Hugh's Pharmaco-Dynamics.

Third and fourth years—

Materia Medica Manual—Fahnestock.

Farrington's or Cowperwaite's Materia Medica, Hahnemann's Organon.

Reference Books—third and fourth years—Allen's Hand-Book, Hering's Condensed Materia Medica, Dunham's Lectures.

THEORY AND PRACTICE.

Lectures on the theory and practice of medicine will be delivered to students of the third and fourth year. It will be the purpose to thoroughly acquaint the student with the description, course and diagnosis of disease, and the method of treating such disease in accordance with the homeopathic law of cure.

The cardinal principles of the philosophy of homeopathy will be clearly presented in didactic and clinical lectures. Students are familiarized with accurate methods of investigation, records of symptoms and history of cases, with the use of the repertory to assist in accurately affiliating the indicated remedy.

THIRD YEAR.

The course for the student of the third year consists of twenty-six didactic lectures, mainly on the diseases of the mouth, stomach and bowels. Eight lectures will be given in the philosophy of homeopathy. Frequent selections of cases from private practices will be given to better set forth the various lectures, as well as methods employed in the record of cases and selections of the remedy. One-half of the time allowed will be employed in frequent quizzes and review of the work gone over.

FOURTH YEAR.

The course for students for the fourth year consists of twenty-one lectures on pulmonary and hepatic affections, with such of the important continued fevers as fall to this chair. The organon work will take the form of frequent "class-room talks," chiefly on the subjects of the following selections, viz: 272-274; 247; 245-251; 252-255; 167-168; 204-205.

In addition students will be required to present written reports of the history and symptoms of cases treated, the repertory work in selecting the remedy and dose, repetition and results. Much time and attention will be given to this feature, and the course as tending in the highest manner to perfect the pupil in the art of accurate prescribing.

TEXT-BOOKS AND COLLATERAL READING.

Practice of Medicine.

Goodno's Practice.

Raue's Therapeutics.

Lippe's Repertory.

Knerr's Repertory.

Pepper's System of Medicine.
DaCosta's Diagnosis.
Ander's Practice of Medicine.

PHYSICAL DIAGNOSIS.

The course on physical diagnosis consists of a series of twenty-four didactic lectures to the third year class, illustrated upon the healthy human subject, thus familiarizing the student with the normal appearances, feelings and sounds. These lectures are classified as follows: Introduction, general examination, respiratory system, circulatory system, digestive system, urinary system.

CLINICAL MEDICINE.

FOURTH YEAR CLASS.

For this course abundant material is found in the University homeopathic free dispensary, where clinics are held every day, and in the City hospitals of Minneapolis and St. Paul, where clinics are held each Monday morning.

In these clinics particular effort is made to supplement the course in physical diagnosis and to fully illustrate the application of the homeopathic law of therapeutics.

In order that the student may obtain as wide a view as possible in this all important branch, they receive instruction not only from Professor Ricker at the bedside in the City Hospital wards, but from the various members of the homeopathic staffs in the Twin Cities, attending the hospitals but not otherwise connected with the University.

In addition the dispensary furnishes many outside cases, which are treated in their own homes, by the members of the fourth year class, under the supervision of Professor Ricker, thus enabling the student to acquire the self-reliance and confidence so necessary to the beginning practitioner.

Physical Diagnosis, Clinical Medicine.
Lilienthal's Therapeutics.
Lippe's Repertory.
Farrington's Clinical Materia Medica.
Vierodt's Medical Diagnosis.
Abram's Manual of Clinical Diagnosis.
DaCosta's Diagnosis.

SURGERY.

The course in surgery is so graded to extend through Sophomore, Junior and Senior years. It consists of didactic lectures, clinical demonstration and actual work by the students of Senior and Junior classes, as they are given one month's work each or more in dispensary clinics every day under charge of attending professor, and are held responsible by him for all emergencies and dressings. They also give all anæsthetics and attend to the post operative treatment. These advantages given our students cannot be excelled, and gives each member that opportunity of gaining for himself that valued knowledge and confidence which only comes by actual experience.

Two years ago the work in surgery enlarged. It now occupies two full years, the third and fourth, including the labors of four members of the college faculty. The work is divided into clinical and didactic surgery.

EMERGENCIES AND BANDAGING.

(1) A course of lectures on surgical emergencies and bandaging is given the students of the Sophomore year in consideration of the means in administering

first aid to the injured, also laboratory instructions of how to apply dressings, bandages, splints and the materials used.

GENERAL AND SPECIAL SURGERY.

(2) The Juniors and Seniors are given two lectures each week each on general and special surgery, during the entire two years, covering all the surgical diseases, and special technique in operative surgery, special attention being paid to pathology, diagnosis and treatment of each disease from a surgical standpoint in conjunction with the valued homeopathic application of remedies. Besides this the Juniors are given a special course on surgical anatomy and the Seniors one on surgical pathology.

OPERATIVE SURGERY.

(3) During the Senior year the class will be instructed in the surgical laboratory in operations on the cadaver, in which the student is called upon to do the work under the special criticism of the professor in charge, thus perfecting themselves by actual practice with operations they will be called upon to perform in later years.

ORTHOPAEDIA SURGERY.

(4) The course on this subject is both didactic and clinical. It consists of one lecture a week during the fourth year.

The whole subject of deformities, their causes, care and removal, is carefully considered in detail. The mechanical apparatus used in the treatment of such cases is exhibited and rules are laid down for the improvising and applying temporary means and instruments. Recent progress in the knowledge of the underlying causes of bony, muscular and habit deformities, and their serious reflex effects, has led to great changes in the methods pursued to overcome them.

The early recognition and treatment of such cases are of the utmost importance, and hence, as they are usually first presented to the general practitioner, a full knowledge of this branch of surgery becomes exceedingly valuable.

The subjects discussed include functional and organic diseases of the bony spine, the several forms of club-foot, joint inflammations, both simple and tuberculous, and their sequela, cleft palate, hair-lip, etc.

CLINICAL SURGERY.

(5) The work in clinical surgery consists in operations before the class in connection with clinical lectures given upon the cases presented. These occupy each Monday of the fourth year, which is set apart as the day for clinics. The third year class is required to attend the clinics, unless their regular class work interferes.

At the clinics which are held at the City and County Hospital, St. Luke's and St. Joseph's Hospitals, of St. Paul, and the City Hospital and Free Dispensary, Minneapolis, are demonstrated the value of antiseptic treatment of wounds, the minute details of the application of surgical appliances and dressings, and operative technique. Post-operative care for reaction, shock, etc., are considered.

Senior students are instructed in the practical use of anæsthetics and are required to attend a number of surgical patients at their homes, carrying out post-operative detail under the direction of the professor.

The surgical department aims to give a complete and thorough course on the subject and its collateral branches.

It should be distinctly understood that examinations on the clinical and laboratory work, both sectional and at the end of the term, no matter by whom

the teaching is done, are counted with the didactic course, the average of all combined constituting the student's standing in surgery for each year. The marks for the four years go to make up his graduation average.

TEXT-BOOKS.

Park's Surgery.
Trene's Operative Surgery.
Wyeth's General and Operative Surgery.
Surgical Technique, by Von Esmarch and Kowalzig.

DIDACTIC COURSE.

The didactic course covers the entire field of the principles and practice of surgery. The lectures will occupy the third year class two hours and the fourth year class three hours each week. Demonstrations will be made upon the cadaver, aided by models and charts.

The lectures to the third class will include surgical pathology, inflammation, hemorrhage, surgical appliances, surgical emergencies, minor surgical operations, ligation of arteries, burns and scalds, sufgical treatment of the anus and rectum, antiseptics, anæsthetics, abscesses, ulcers, gangrene, hernia and the elements of the treatment of wounds, fractures, dislocations and amputation.

The lectures of the fourth year class will include the surgery of the bones, joints, genito-urinary organs, tumors, cysts, fractures, dislocations, amputations, syphilis, together with the operative surgery of the head, face, chest, abdomen, pelvis, skin, nerves and extremities.

All the lectures will aim to be comprehensive, practical, and in keeping with the best standards of advanced surgery.

TEXT-BOOKS, DIDACTIC COURSE.

Park's Surgery.
Homeopathic Text-Book of Surgery.
Mamline's American Text-Book of Surgery.
Bradford & Lovett's Orthopædic Surgery.
Pye's Surgical Handicraft.

OBSTETRICS.

This subject is taught by lectures and recitations, thoroughly illustrated with charts, manikins and specimens. The course will be graded and divided between the third and fourth years.

During the third year subjects covered will embrace the anatomy and physiology of the female generative organs and the pelvis, the development of the embryo, the maternal changes of pregnancy, the diagnosis of pregnancy, the physiology, pathology and hygiene of pregnancy, the physiology and the course of normal labor, the conduct of normal labor and the management of the puerperium.

During the fourth year the following subjects are taught: the mechanism of labor, diagnosis and management of the various presentations, dystocia, complications of labor, physiology, pathology and management of the puerperium, and obstetric surgery.

CLINICAL OBSTETRICS.

This department instructs the fourth year students and applies practically the teachings of the department of obstetrics. An abundance of material is supplied

by the dispensary and city hospitals of St. Paul and Minneapolis. The student will be thoroughly educated to locate accurately the position and condition of the internal parts both in health and disease, the obstetric points of the pelvis, as well as the diameters, planes and curves, the presentation and position of the child and methods of diagnosis, the stages and mechanism of labor, the management of normal and abnormal labors, the application of the forceps and the necessary steps in performing version.

Each member of the class will be assigned at least three cases of pregnancy, which he will be required to attend under the immediate direction of the professor of the chair.

During the last month of pregnancy of a case as assigned, the student in charge will report to the professor the patient's name, address, age, number of previous labors, date of first birth and last labors, date of quickening, condition of uterus, heart, lungs, bowels, kidneys, etc., and a detailed statement regarding the appearance of the patient, location of the foetal heart, position of the child, character and size of the pelvis.

At the time of labor the student will be required to keep a record of the following facts:

Number of the case, date, name, address, condition of the osuteris, height of presenting part, pulse rate and quality (ante and post partum), rapidity of foetal heart beats and where heard most clearly, presentations, position and duration of the first, second and third stage.

Also the sex of the child, the diameters of its head, weight, and length. The post partum condition of the uterus, servix and perineum.

An operative course on the female cadaver will also be given, demonstrating the operative technique in symphisiotomy and Cæsarean section.

TEXT-BOOKS AND COLLATERAL READINGS.

Leavitt.
Lusk's Midwifery.
American Text-Book of Obstetrics.
Hirst's Text-Book of Obstetrics.
Grandin & Jarman's Midwifery.
Playfair's Midwifery.
Boisliniere, Obstetric Accidents.
Davis' Obstetrics.

DISEASES OF WOMEN.

This course will consist of one didactic lecture during the third and fourth years and two clinics a week during the fourth year.

In the third year, both semesters, the anatomy, physiology and pathology of the pelvic contents and perineum are carefully described. The preparation of the patient for surgical operation together with the necessary steps taken, the various surgical procedures as well as the medical treatment of all pelvic diseases, will receive minute attention both semesters of the fourth year.

The medical and surgical diseases of women will be treated in didactic lectures and recitations. The entire field of gynecology will be covered in the lecture room. As cases present themselves in the city hospitals of St. Paul and Minneapolis, the subject thus described will be demonstrated on the living subjects.

Gynecology.

Wood, Text-Book of Gynecology.

DISEASES OF CHILDREN.

The course on this subject will consist of one lecture each week and three clinics

to the fourth year students, and extending over two semesters. The clinics are full and afford an exceptional opportunity to study the common diseases of childhood. In the out-door department many cases of exanthematous cases are treated by the members of the class.

The didactic course embraces a description of the normal development of infancy and childhood, natural and artificial infant breeding, signs and symptoms of hereditary syphilis, contagious and infectious diseases, tuberculosis, erysipelas, and the diseases of the respiratory and urinary organs; those of the circulatory, nervous and digestive systems, rhachitis and diseases of the skin.

TEXT-BOOKS AND COLLATERAL READING.

Tooker's Diseases of Children.
Holt's Diseases of Children.
Fisher's American Text-Book of Diseases of Children.
Collateral reading—Cyclopedia of Diseases of Children.

MENTAL AND NERVOUS DISEASES.

This course consists of twenty-eight didactic lectures, in the fourth year, and as many clinical demonstrations as material is presented at the dispensary and the City Hospital, Minneapolis. It is the aim of the chair to qualify the student to detect the earliest symptoms of insanity and diseases of the nervous system.

The anatomy and physiology of the brain and spinal cord are reviewed and particular attention is paid to the causes, development, characteristic symptoms and the pathological conditions of the diseases of the nervous system. The therapeutics, dietetics and direction of the personal care in each disease is especially elaborated.

Talcott's Mental Diseases.
Clouston's Mental Diseases.
Edinger's Anatomy of Central Nervous System.
Martin's Nervous Diseases.
Dana Text-Book Nervous Diseases.
Bigelow's System of Electro-Therapeutics.
Oppenheim's Diseases of the Nervous System.
Collateral reading—Hack Tuke's Dictionary of Psychological Medicine; Bevan Lewis' Mental Diseases; Kirchoff's Handbook of Insanity; Ferrier's Localizations of Cerebral Diseases; Strumpell's Text-Book of Medicine; Hirt's Diseases of the Nervous System; Horsley's Brain and Spinal Cord.

Hygiene.

Coplin and Bevan's Practical Hygiene.
Park's Hygiene.
Collateral reading—Richardson's Preventive Medicine; Buck's Hygiene and Public Health.

ELECTRO-THERAPEUTICS.

This subject will be carefully taught. The physics of electricity will be sufficiently considered to enable the student to understand the construction and manipulation of galvanic aradic, sinusoidal and static batteries. The application of every form of electricity will be practically demonstrated.

MEDICAL JURISPRUDENCE.

The object of this chair is to familiarize the student with his duties, rights and responsibilities from a legal standpoint. The law on each subject discussed

is carefully explained and illustrated, as far as possible, with adjudicated cases.

Medical Jurisprudence.

Taylor's Medical Jurisprudence.

Herold's Manual of Legal Medicine.

Collateral reading—Hamilton's American System of Legal Medicine; Withaus' and Becker's Medical Jurisprudence and Toxicology; Wharton and Stille's Jurisprudence.

OPHTHALMOLOGY.

In the department of ophthalmology the endeavor is to give thorough instruction in those parts of the work which will ordinarily come into the hands of the general practitioner.

The course is supplemented by as much practical work as time allows, in the use of the ophthalmoscope for the study of intraocular troubles, whose recogni- would aid in the diagnosis of various conditional affections; and following a short didactic course given early in the year on the subject, practical work in the correction of the refraction is carried on at the dispensary during both semesters.

The clinical material provided in the department is very abundant, interesting and instructive cases, embracing all varieties of eye troubles calling for medical and surgical aid being presented to the students bi-weekly throughout the entire year.

The following schedule shows the subjects considered in the present course of lectures:

Anatomy and physiology of the eye; refractions and use of the lenses for the correction of its errors; diseases of the lids; conjunctiva; cornea; sclera; lachrymal apparatus; iris and ciliary body; lens choroid; retina and optic nerve; affections of the muscular apparatus of the eye and the general relationship between eye-strain and reflex and nervous disorders.

The didactic course consists of thirty-two lectures during the fourth year and ten during the third year.

Ophthalmology.

Norton, Buffum, Swanzy, Noyes.

Collateral reading—Fuch's Diseases of the Eye.

DISEASES OF THE NOSE, THROAT AND EAR.

The course will consist of didactic lectures and clinical demonstrations.

One didactic lecture a week will be given to students of the third year. An understanding of the anatomy and physiology of the organs is presupposed, and but little time will be devoted to the review of the more important points in their bearing upon diseases of these organs. The lectures will enter upon the diseased processes in the nose—the various forms of acute and chronic catarrhal inflammation, their courses, developments, symptoms, consequences and treatment, both general and local, abnormal growths, affections of the septum and diseases of the accessory sinues, finishing the course on the nasal cavities with the neuroses, functional and organic.

The diseases of the naso-pharynx are treated with special reference to their dependence upon nasal conditions and their influence upon the organ of hearing. The course includes acute and chronic catarrhal processes, adenoid vegetations and morbid growth.

Diseases of the pharynx are considered in their dependence upon alimentary disorders, acute and chronic inflammatory conditions; morbid growths and neurosis, together with the pharangeal and tonsilar conditions incident to the exanthemata, diphtheria, typhoid fever, etc.

In the laryngeal disorders we become more closely associated with respiratory diseases; the various forms of laryngeal inflammation, morbid growths and nervous affections will be discussed—especial stress being put upon the early laryngeal manifestations of tuberculosis and the laryngeal disorders of voice users with the importance of proper vocalization and respiration upon all diseases of this organ.

Ear diseases resolve themselves into: Diseases of external canal and pinna, dermoid inflammation; diseases of the middle ear; mucous inflammation; diseases of the internal ear; serous and nerve inflammation.

The course to the fourth year students will be entirely clinical, the class being divided into sections for dispensary work; the aim will be to familiarize the students with the use of the various diagnostic means at their disposal, and the appearance of the various abnormal conditions, together with the technique of the numerous operative procedures. The material for clinical demonstrations is abundant.

Ear: Barr.

Nose and Throat: Kyle, Bosworth, Ivins, McDonald.

Nose, Throat and Ear: Veshlaget & Hallett; McBride, Burnett.

SKIN AND GENITO-URINARY DISEASES.

This course will consist of one didactic lecture and one clinic each week for students of the fourth year. It will include the diseases of the skin, syphilis and all genito-urinary affections.

The first semester will be devoted to a study of the diseases of the skin, the second to syphilis and venereal surgery. The dispensary clinics will be especially valuable in supplementing the work of the professor in the lecture room by familiarizing students with the appearance of the various forms of skin and venereal diseases. Each student is required to diagnose cases and treat patients under the supervision of the professor, thus giving him actual experience in administering remedies and using instruments. During the course of the year each student has personal charge of about fifty patients in this department.

TEXT AND REFERENCE BOOKS.

Dermatology: Kippax, Stelwagon, Durhring, Dearborn.

Genito-Urinary: Carlton, Hoyne, Franklin, American Text-Book, Bumstead and Taylor.

HISTORY AND METHODOLOGY OF MEDICINE.

The lectures given in this chair are an exposition of the philosophy and art of medicine by the historical method. The student is taught to see how in each age practice of medicine has been the outgrowth of the beliefs current regarding the nature of man. Give to a student the theories held by a people regarding the constitution of matter, the nature of mind and force, and he can accurately foresee the medical science such as people will accept. The unfolding of the world's thought in medicine sets homeopathy in its high place and gives the student an outlook much needed in the profession. The tendency of medicine has always been to over-estimate the material side of a man's nature and to make innumerable hypotheses to explain disease. The conflicts in medicine have been the clashing, not of opposite sects, but of antagonistic systems of thought, and reconciliation is possible only on the grounds of higher science than that of mere sense knowledge. This ground is revealed in the history of the philosophy of medicine.

The course includes the medicine of the Egyptians, Persians, Indochinese, Hebrews, Greeks, Arabians and of Europe down to the present.

One lesson each week during the freshman year.

HISTOLOGY AND EMBRYOLOGY.

The laboratory of histology and embryology occupies most of the first floor and portions of the third floor and basement of the laboratory of medical sciences.

The general laboratory, 44x72 feet, extends across the north wing and is abundantly lighted by large windows on three sides and part of the fourth. Study tables accommodating seventy students are placed directly under the windows. A second tier of desks provides for twenty other students. Each student is provided with a separate locker for the storage of apparatus and material. The special laboratory, 24x35 feet, for research work by advanced students, adjoins the general laboratory. The next apartment, the library of the laboratory, contains a reference library consisting of a small but carefully selected collection of related literature, both standard and periodical. In addition to the laboratory library, the other libraries of the University, together with the public libraries of Minneapolis and St. Paul, afford the student access to the best publications among current periodicals and monographs. The rooms across the hall are devoted to the office and private laboratories of the professor and his assistant. On the third floor are located a preparation room, a small laboratory for special students, a dark room, a room for copying and enlarging, and a laboratory for photomicrography and projection. In the museum on this floor, are several cases containing series of embryos and histologic specimens. In the well-lighted basement are found a preparation room, 20x35 feet, for the hardening of tissues, &c., and an experimental laboratory and store room, 26x36 feet.

These laboratories are equipped with ninety Leitz' microscopes, each fitted with nose-piece and Abbe condenser; various forms of microtomes, such as freezing, Thoma, Minot, Schanze, &c., injection apparatus, aquaria thermostats, incubators, water baths, chemical hoods, a great variety of technical glassware, Grubler's strains, a set of His' wax models, photomicrographic and reconstruction apparatus, charts, reference cabinets containing carefully selected slides, a large collection of hardened histological and embryological material with an abundant supply of fresh tissues.

The courses are made as practical as possible, beginning with the technique of the microscope, followed by the preparation of permanent specimens. Collections of typical specimens, also, will be loaned to the students for study. During the two years' course the student will acquire a valuable collection of slides of his own preparation illustrating the structure and development of the human body.

The course is illustrated by charts and lantern-slides of histological and embryological specimens. Demonstrations are given under the microscope of typical sections of tissues and organs, accompanied by camera lucida drawings, or photomicrographs, with explanatory text.

All students are recommended to purchase a microscope at the beginning of their medical course. This instrument is an indispensable part of the outfit of a well-trained physician. Suitable microscopes can be purchased at from $50 to $60, which may be fitted at any time with such other parts as may be desired.

Students not owning microscopes will be furnished with instruments at a rental of $4 for first year courses, and $2 for second year courses.

Course I. General morphology and histology.

Lectures, demonstrations and laboratory work. The course includes the structure and manipulation of the microscope; the structure and properties of protoplasm; the cell, its structure; cell division and reproduction, leading to the consideration of the elements of structure in the vertebrata. A comparative study of the histology of the blood, of the epithelial, connective, muscular and nervous tissues and of the

vascular and lymphatic systems of man and the vertebrata. Lectures, etc., 6 hours a week. Laboratory work, 18 hours a week, first half, first semester, first year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course II. Elements of vertebrate embryology and histogenesis.

Lectures, demonstrations and laboratory work. A comparative study of reproduction; the ovum, the spermatozoon, fertilization, cleavage, formation of blastodermic layers, the formation of the embryo, foetal envelopes, etc., with practical work on chick and frog embryos. The differentiation and histogenesis of the tissues, etc. Lectures, etc., 6 hours a week; laboratory work, 18 hours a week, first semester, first year. Open to those who have completed course I.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON

Course III. Microscopic anatomy of man and vertebrates.

Lectures, demonstrations and laboratory work. Advanced methods of histological technique, with practical laboratory work. The comparative study of the morphology, microscopic anatomy, origin and development of the various organs the integumentary, alimentary, respiratory and uro-genital systems, etc. Lectures, etc., 6 hours a week; laboratory work, 18 hours a week. First semester, first year. Open to those who have completed course I in histology and embryology.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course IV. Vertebrate neurology and neurogenesis.

Lectures, demonstrations and laboratory work. The comparative study of the morphology, microscopic anatomy, origin and development of the central, peripheral and sympathetic nervous systems and the organs of special sense. Lectures, etc., 4 hours a week; laboratory, 18 hours a week. First half, second semester, second year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

Course V. Human embryology and organogenesis.

A comparative study of human and mammalian embryos, including impregnation, segmentation, and implantation of the ovum; the formation, structure and relationships of the placenta and foetal envelopes; the details of organogenesis, etc., studied in a practical manner upon a very large collection of serial sections of human and mammalian embryos, cut in various planes and representing all phases of development. First half, second semester, second year.

PROFESSORS LEE AND NICKERSON AND M. L. NICKERSON.

The following elective courses are open to properly qualified senior students and will consist of practical work in the laboratory upon special problems, a prescribed course of reading, with reports of work, and of lectures and demonstrations to be given from time to time.

Course VI. Methods of microscopical technique.

The preparation and use of the various solutions employed in fixing, hardening and staining, methods of embedding, sectioning, reconstruction, etc.

Course VII. (a) Comparative histology and histogenesis of tissues.

The animal cell, the epithelial, connective, muscular, and nervous tissues, blood, etc.

(*b*) *Comparative histology and histogenesis of the tissues.*

The epidermal, digestive, respiratory and uro-genital systems of organs.

(*c*) *Comparative histology and histogenesis of the nervous system and sense organs.* Central nervous system, etc., after the methods of Weigert, Golgi, etc.

Course VIII. The animal parasites of man.

The means of recognition, morphology, structure and development of the animal parasites of man.

Course IX. Comparative embryology of vertebrates.

A detailed study of the various stages in the development of vertebrate types, as acanthias, petromyzon, trout, amblystoma, frog, chick, rat, pig and human embryos.

Course X. Research work in histology and embryology.

Opportunity will be offered for those desiring to pursue original research and investigation.

The following text and reference books should be consulted:

Histology. Wilson's, The Cell; Bohm-Davidoff-Huber's Histology; Piersol's Histology; Szymonowicz-MacCullum's Histology; Stohr's Histology; Hertwig's The Cell; Kolliker's Gewebelehre; Oppel's Microskopishchen Anatomie; Duval's Histologie; Ranvier's Histologie; Klein's Histology; Weyesses' Histology; Sobotta-Huber's Atlas; Lee's Vade Mecum; Mann's Histology.

Embryology. Minot's Human Embryology; Minot's Laboratory text book; Hertwig's Handbook; Hertwig-Mark's Embryology; McMurrich's Embryology; Kolliker's Embryologie; Kollman's Embryologie; Marshall's Embryology; Heisler's Embryology; Schenks' Embryologie; Schultze's Embryologie.

Neurology. Barker's Nervous System; Gordinier's Nervous System; Van Gehuchten's System Nerveux; Kolliker's Gewebelehre II; Oberstiner; Edinger's Vorlesungeun; Sabin's Atlas.

ANATOMY.

The department of anatomy occupies a separate building, adapted to its work and equipped with the best modern appliances. It includes two large students' dissecting rooms, the general laboratories of anatomy, a bone laboratory for bone research work, the offices of the professor and demonstrator of anatomy, preparation rooms and morgue. An ample supply of dissecting material is provided.

In the first year the subjects of osteology, syndesmology and myology are pursued by means of lectures, laboratory demonstrations and recitations from the specimen.

The bones of a human skeleton are loaned to the student for purposes of study and recitation.

Angiology and splanchnology are studied in connection with the dissection and laboratory demonstrations of the thoracic, abdominal and pelvic viscera upon the lower animal. This is followed by the dissection of one-half of the human body.

In the second year the alimentary canal, respiratory tract, genito-urinary system, organs of special sense and the cerebro-spinal nervous system are pursued by means of lectures, recitations and laboratory demonstrations. The dissection of the human body is completed and followed by a series of lectures and demonstrations on descriptive and surgical anatomy.

The student dissects throughout the second semester of the second year, recites upon the subject and observes demonstrations made by a corps of assistants under the direction of the demonstrator of anatomy.

Dissection is supplemented by drawings from dissections, made upon outlines of the human skeleton, which are furnished to the student.

In the third year the student takes up the study of the human body from a topographical and surgical standpoint and is given a thorough review of the surgical regions, emphasizing the practical points in the relations, structure and distribution of the nervous system.

Course I. Osteology.

Lectures and recitations upon the human skeleton and supplementary work on the osteology of domestic mammals; 4 hours each week, for 5 weeks of first semester. Practical study of the skeleton, followed by recitations from the specimen, taken by the class, in sections; first semester. Required of all first year students.

Course II. Syndesmology.

Lectures, recitations and laboratory demonstrations, 4 hours each week, for 3 weeks first semester, first year. Open to those who have taken course I.

Course III. Myology.

Lectures and recitations, covering the entire muscular and arterial systems of the human body, with a supplementary study of comparative myology; 4 hours each week for four weeks. Laboratory work consists in identifying the muscles of the human body on dissected preparations and showing their actions. Class, in sections, 4 hours each week, first semester, first year. Open to those who have taken course II.

Course IV. Splanchnology and angiology.

Lectures on the thoracic, abdominal and pelvic viscera, 4 hours each week, for 3 weeks. Open to those who have taken course III. Laboratory work in demonstrating and dissecting the thoracic, abdominal and pelvic organs of the human subject or of the dog or sheep. First semester, first year. PROFESSOR ERDMANN.

Recitations upon the subjects of the first year's work, conducted in sections by DRS. H. K. READ AND E. R. HARE.

Course V. The nervous system.

Cerebro-spinal axis and its membranes; the cranial and spinal nerves; the sympathetic nervous system, and the special-sense organs. Lectures, recitations and dissections of the brain, 5 hours each week, for 4 weeks, first half, second semester, second year.

PROFESSOR ERDMANN.

Course VI. Dissections.

This work extends over a period of 8½ weeks, occupying with the lecture course the half days of this period each week. The method of work follows that laid down in Holden's Manual of Dissections.

DRS. H. K. READ AND E. R. HARE.

The second year lecture and dissecting courses are open to those having completed the first year's work in anatomy and histology.

Daily recitations, upon the subjects of the second year's course, conducted in sections.

PROFESSOR ERDMANN, DRS. H. K. READ AND E. R. HARE.

Course VII. Surgical anatomy.

The instruction consists of dissections, demonstrating the relations of structures composing the surgical regions of the body; demonstrations, upon the living subject, showing the anatomical and surgical landmarks and their applications; also the location, by surface tracings, of the viscera contained in the various cavities and of the im-

portant arteries, veins and nerves; 4 hours a week, second half, second semester. Required of third year students.

PROFESSOR ERDMANN.

Course VIII. Applied anatomy of the nervous system.

Elective.

Opportunity is afforded for advanced work in practical anatomy at any time during the college year.

The following text-books should be consulted:

Anatomy.

First year—

Gray's Descriptive and Surgical Anatomy, revised American edition.
Morris' Text-book of Human Anatomy.
Quain's Anatomy, 10th edition, Vol. II, Pts. I and II.
Gerrish's Anatomy.
Cunningham's Anatomy.

Second and third years—

Gray's Anatomy, revised American edition.
Quain's Anatomy, 10th edition.
Morris' Text-Book of Anatomy.
Gerrish's Anatomy.
Spalteholtz' Atlas of Human Anatomy.
Holden's Practical Anatomy.
Erdmann's Manual of Dissections of the Human Body.
Owen's Manual of Anatomy.
Treve's Applied Anatomy.

Collateral reading—Flower's Osteology of Mammals; Gegenbauer's Elements of Comparative Anatomy; Chauveau's Comparative Anatomy; Wiedersheim's Elements of Comparative Anatomy; McClellan's Regional Anatomy; Meynert's Psychiatry, Part I: anatomy, physiology and chemistry of the brain; Deaver's Surgical Anatomy; Edinger's Anatomy of the Nervous System; Hildebrand's Chirurgisch Topographise Anatomie.

PHYSIOLOGY.

The department of physiology occupies a suite of rooms in the laboratory of medical sciences, including the laboratory of experimental physiology, the laboratory of physiologic chemistry and practical dietetics, a demonstration and recitation room, the laboratory library and the office of the professor in this branch. A large amphitheatre, adapted to the demonstration of major experiments, immediately adjoins the physiologic laboratories and is used, also, for lecture purposes by this and other chairs.

In the basement of the laboratory of medical sciences, the chair maintains large and well-equipped animal-rooms, which are furnished with a large aquarium, frog tanks, animal enclosures and breeding cages. From this animal room are furnished supplies of material and animals for the work in experimental physiology, physiologic chemistry, histology, embryology, pathology and bacteriology. The hygienic conditions of the room are studied carefully, with a view to maintaining the physiologic and structural integrity of its animal occupants as perfectly as possible.

The physiologic laboratories are equipped with a full supply of apparatus, instruments, etc., for experimental purposes, and with materials, glassware, digesters, water baths, ventilating hoods, etc., for the work in physiologic chemistry. Their outfit includes sets of vivisection instruments, an artificial respiratory machine, batteries, Du Bois-Reymond coils, galvanometers, rheostats, moist muscle chambers, recording drums, Ludwig's kymograph, spring myograph, Burdon-Sanderson's stethometer, stethoscopes, phonendoscopes, Dudgeon's and

Marey's sphygmographs, cardiographs, Runne's chronograph, Roy's tonometer, Gaskell's clamp, oncometers, haemometers, haemoglobinometers, haematocrits, plethysmograph, etc., etc. They are furnished with motor power for the operation of recording apparatus and for the manufacture of apparatus in the laboratory workshop.

The course in physiology is graded in the first and second years. In the first year, the student hears lectures, recites and attends demonstrations and practical exercises in general physiology. These embrace the discussion, and, so far as possible, the observation of the physiologic ingredients of the animal body; the study of the physiology of cell-life, of the fundamental properties of the cell, of the nutritive media, blood, lymph and chyle; of the elementary functions of the nervous system; of the muscular tissues, the connective tissues and the epithelial tissues; of the vascular mechanism; of the alimentary canal; of the organs of secretion, respiration, excretion, and metabolism.

In the second year, the work is made as practical as possible and includes the study of such advanced topics as reproduction, the physiology of foetal life, of infancy, of maturity and of old age; and the functions of the brain, spinal cord, ganglionic and peripheral nerve systems. Twelve hours each week, during the first half of the first semester, are occupied in laboratory work in physiologic chemistry. This course affords the student a practical knowledge of the tissues and fluids of the body from a chemical standpoint. It embraces studies in the several classes of proteids, in fats, carbohydrates, bone, muscle, blood, milk, the digestive fluids, glycogen, etc.

A similar number of hours during the second half of the first semester are devoted to experimental physiology. For this work the class is divided into sections and the instruction is individualized so far as possible. The student is familiarized with physiologic apparatus and its uses, with forms of electrical stimulation and with methods of experimentation, while his knowledge of physiologic principles is strengthened by the observation of functional facts. Demonstrative work is combined with the individual experiments performed by the pupil.

In the fourth year, an elective course in practical dietetics is conducted during the second half of the first semester. It deals with the analysis of foods, with the general principles of food preparation and with selections of a suitable dietary for the several periods of life.

Practical talks upon the principles and means of food preparation, the serving of food, food selection, invalid and infant dietary, etc., are associated with this course. A trained instructor conducts the exercises in hygienic cooking.

A laboratory reference library is accessible to the students for collateral reading.

Course I. General physiology.

Lectures, recitations and demonstrations, dealing with the physiologic chemistry of the human body; the physiologic properties of the cell; the nutritive media; the nervous mechanisms in general; the muscular tissues, the connective tissues and the epithelial tissues, as the structural bases of the animal body. Eight hours a week, second semester, first year. PROFESSOR BEARD.

Course II. Systemic physiology.

Lectures, recitations, demonstrations and practical exercises. This course includes the physiology of the vascular system; the digestive system; the respiratory system; the secretory and excretory systems; and metabolism. Eight hours a week, second semester, first year. Open to those who have completed course I.

PROFESSOR BEARD.

Recitations upon the subjects of the first year are conducted in sections of the class.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Course III. Advanced physiology.

Lectures, recitations and demonstrations. The course includes the discussion of the statistics of nutrition; of reproduction; of the physiologic changes incident to successive periods of life, and of the functions of the nervous system. Six hours a week, first semester, second year. Open to those who have completed the courses in physiology of the first year.

PROFESSOR BEARD.

Recitations upon the subjects of this course are conducted in sections of the class.

PROFESSOR BEARD AND DR. WILCOX.

Course IV. Physiologic chemistry and microscopy.

Laboratory work and demonstrations. A practical study of the several classes of proteids; of carbohydrates, fats, muscle and bone; of gastric juice, saliva, pancreatic juice and bile in their respective digestions; of glycogen, and of blood, lymph, chyle and milk. Microscopic study of the carbohydrates in vegetables and animal forms: of the physiologic emulsions of fat; of the crystalline waste products, and of the physiologic conditions of the blood cells and the processes of fibrin formation. Practical instruction is given during this course in the enumeration of the blood cells, in the estimation of hæmoglobin and of the corpuscles in mass, in the spectroscopic examination of the blood and in the use of the polariscope. Nine hours a week, first half of first semester, second year. Open to those who have completed courses I and II.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Course V. Experimental physiology.

Laboratory work and demonstrations. A study of physiologic apparatus, electrical stimuli and methods of experimentation: the demonstration of experiments which illustrate physiologic function in the muscular, nervous, vascular, respiratory and glandular systems. Six hours a week, second half of first semester, second year. Open to those who have completed course IV.

PROFESSOR BEARD, DRS. M. R. WILCOX, AND G. D. HAGGARD AND MISS WILKINSON.

Text-Books:

First and second years—

Foster's Physiology, sixth edition.
Howell's American Text-Book of Physiology.
Stirling's Practical Physiology.
Waller's Human Physiology.

Collateral reading—Landois and Stirling's Handbook of Physiology: Chapman's Physiology: Stewart's Practical Physiology: Blyth's Foods: Raymond's Physiology: Kirk's Physiology; Hutchinson's Dietetics.

Course VI. Practical dietetics. (Elective.)

Lectures and laboratory exercises. A study of food analysis, food preparation and of the general principles of food selection, including a discussion of invalid and infant dietary. Six hours a week, second half of first semester, fourth year.

PROFESSOR BEARD AND MISS WILKINSON.

CHEMISTRY.

The work in medical chemistry is carried on in a building especially arranged for it. The qualitative laboratory has a floor space of about 2,300 square feet and accommodates 100 students at a time. It is used for instruction in general chemistry and qualitative analysis. The quantitative laboratory has a floor space of about 1,500 square feet and accommodates 68 students at a time. It is used for instruction in urinalysis, toxicology, quantitative analysis, organic chemistry and chemical hygiene. The water analysis laboratory has a floor space of 300 feet and is used exclusively for the sanitary examination of water.

Course I. The chemistry of the elements, with especial reference to inorganic materia medica.

Lectures and recitations; second semester, first year. Laboratory work in the chemistry of metallic and non-metallic elements. Second semester, first year. PROFESSOR CAREL.

Course II. Qualitative analysis.

Lectures and recitations; second semester, first year. Laboratory work, corresponding to the above and including the qualitative determination of metals and of acids. Second semester, first year.

PROFESSOR CAREL.

Course III. The qualitative and quantitative analysis of the urine.

Lectures and recitations; first semester, second year. Laboratory work, including the qualitative analysis of twenty specimens of normal and abnormal urine, the quantitative determination of sugar, albumen, chlorides, phosphates and urea, and the standardization of reagents. First semester, second year. PROFESSOR CAREL.

Course IV. Toxicology. The chemistry of the poisons and of their antidotes and the study of symptoms, treatment and post-mortem appearances following the introduction into the animal body of each and every poison.

Lectures and recitations: first semester, second year. Laboratory course in toxicology, including the chemical reactions of poisons and their antidotes; the physiological action of important poisons; the effects of antidotes; and post-mortems, followed by a toxicological examination of the blood, urine and various organs. (Optional.) First semester, second year. PROFESSOR CAREL.

Course V. Chemistry of Hygiene. The chemistry of air, soil and water. Lecture and recitations; first semester, second year. Laboratory course in the sanitary examination of air and water. (Optional.) First semester, second year. PROFESSOR CAREL.

Course VI. Chemistry of the Compounds of Carbon. A condensed course upon those features of organic chemistry which are of special interest and value to the physician.

Lectures and recitations: first semester, second year. Laboratory work in the preparation of important organic bodies used in medicine. (Optional.) First semester, second year.

PROFESSOR CAREL.

The following text-books will be recommended in the above courses:

Carel's Inorganic Chemistry Syllabus.
Bell's Notes on General Chemistry and Qualitative Analysis.
Carel's Chemical Urinalysis.
Reese's Toxicology.
Bell's Outlines of Organic Chemistry.

Collateral reading: Remsen's College Chemistry; Witthaus' Manual of Chemistry; Richter's Inorganic Chemistry; Roscoe and Schorlemmer's Treatise on Chemistry, Vols. I and II; Dammer, Anorganische Chemie; Graham-Otto, Anorganische Chemie; Purdy's Urinalysis; Tyson's Urinalysis; Neubauer and Vogel, Analyse des Harns; Woodman and Tidy's Forensic Medicine and Toxicology; Taylor's Treatise on Poisons; Dragendorff, Die Ermittelung von Giften; Witthaus' and Bechler's Medical Jurisprudence and Toxicology; Husemann and Hilger, Die Pflanzenstoffe; Parks' Hygiene; Rideal's Sewage; Leffman or Simon's Water Analysis; LeConte's Geology; Hill or Turnean and Russell on Public Water Supplies; Bernthsen, Organische Chemie; Remsen's Organic Chemistry; Perkin and Kippling's Organic Chemistry; Levy or Fisher, Organischer Praparate.

PATHOLOGY AND BACTERIOLOGY.

The laboratories of pathology and bacteriology occupy spacious quarters in the laboratory of medical sciences. A general laboratory, 44x70 feet, is well lighted by windows on three sides and a part of the fourth. Electric light for microscopic and general illuminating purposes is also provided. The arrangement is such that four students are grouped so as to have a sink, with gas and electric light, distilled and city water and waste connection, and ample desk space next the windows. Eight lockers, arranged beneath the table and on the walls, provide for apparatus, microscopes, etc., and are given at the beginning of the course to each quartette. Immediately behind and accessible to each student, are sterilizers, incubators, blow-pipes, etc. Cupboards, drawers, a large incubator, sinks, fume chambers, demonstration and distribution tables, complete the arrangement of the room.

Two private rooms of the demonstrators flank on either side. Adjoining one of these are the department library and the office and private laboratory of the professor of pathology and bacteriology. Adjoining this is the private laboratory of the professor of surgical and clinical pathology. Specimens illustrative of surgical pathology are here prepared and diagnostic work done.

In the basement of the building the department has store rooms and a room where pathological animals are housed. Here too are equipped laboratories for research in bacteriology and experimental pathology, as well as a room in which all the culture media are made.

In the third story, immediately above and of the same size as the large laboratory, is a museum for the storage and exhibition of pathological specimens. A preparation room for their reception and assorting adjoins it.

The hospitals of Minneapolis and St. Paul afford a large supply of material and frequent opportunities for post-mortem examinations.

From many institutions and physicians throughout the state, valuable and interesting gross and microscopic materials are frequently received.

MICROSCOPES.

An adequate equipment of microscopes with attachments, immersion lenses, etc., permits of the rental of an instrument to each student, at a cost of $2.00 per course, whenever he is unprovided with one suitable for his purposes.

BACTERIOLOGY.

Course I. General bacteriology.

Lectures and demonstrations. The general scope of bacteriology, the history of its development and the biological and chemical problems involved in the life history of bacteria will be dealt with. The classification of the various bacterial forms, the methods of isolation

and culture and the composition and manufacture of culture media will be studied until a thorough knowledge of technique is acquired. General and special study of the various antiseptics, disinfectants and bactericidal substances and conditions will be undertaken.

Laboratory work involving the making of their own culture media by the students, the study of bacteria in cultures and under the microscope, technique of staining and other methods, including observations of chemical and biological peculiarities, will be thoroughly carried out. Testing of various germicides—chemical and physical—and the use of bacteriological methods in the examination of drinking water will form an important part of the work. Eighteen hours per week during the last eight weeks of the second semester, second year.

PROFESSOR WESBROOK, DR. CHOWNING.

Course II. General pathology.

Lectures, demonstrations and laboratory work on the general processes involved in disease, to include the study of inflammation, the degenerations and tumors. Eighteen hours per week during the last eight weeks of the second semester, second year.

PROFESSOR WESBROOK, DR. WILSON.

Course III. Pathology of special diseases (includes bacteriology).

Disease processes will be grouped, so far as practicable, according to their etiology. Instruction will be afforded by means of lectures, demonstrations on museum specimens and preparations, and laboratory work on materials secured from clinical cases and at autopsy.

The course will consist of instruction in

1. Pathology of infectious diseases.

(*a*) Special bacteriology of the infectious diseases with the cultivation on the various media of all the important pathogenic bacteria, sown and kept under observation by each student. Fluids and tissues from clinical cases (human and animal) will be supplied for microscopic and cultural examination and an intimate relationship with clinical and pathological work maintained.

(*b*) Special pathology of the infectious diseases. Concurrently with the bacteriology and parasitology of each of the diseases, the pathology of each infection will be studied.

The important gross and microscopic lesions in all the organs will be illustrated from clinical and autopsy material fresh and preserved and supplemented by experiment work. Each student will be required to prepare and examine under the microscope selected fresh and stained specimens of morbid tissues, fluids, etc.

PROFESSOR WESBROOK, ASST.-PROFESSOR WHITE, DR. CHOWNING.

2. Pathological diseases of toxic and obscure origin. Under this are included the special degenerations, inflammations and other pathological conditions not already included under infectious diseases.

ASST.-PROFESSOR WHITE, DR. CHOWNING.

Course III. Pathological and special diseases.

Fifteen hours per week throughout the first semester of the third year.

Course IV.

Autopsies and post-mortem technique. Students will have an opportunity of personally taking part in this work, under the direction of the pathologists in charge, in the hospitals of Minneapolis and St. Paul. A knowledge of the technique of post-mortem work and of morbid anatomy will be thus afforded. Throughout the third and fourth years.

ASST.-PROFESSOR WHITE AND DR. ROTHROCK.

Course V. Special pathology of the nervous system.

An elective course limited to twenty-five students.

So far as possible, the clinical history, autopsy notes, gross specimens and sections stained by various special methods will be presented of individual cases representing the principal organic diseases of the nervous system. Twelve hours per week, first four weeks, second semester, fourth year. DR. WILSON.

Course VI.

Laboratory course on the microscopic study and diagnosis of tumors. (Elective for a limited number of students in fourth year.) This course includes the comprehensive study of tumors, with the view of giving the student a knowledge of the methods employed in the laboratory diagnosis of this class of pathological conditions and familiarizing him with the characters of the commoner as well as the rarer types, special attention, however, being given to the latter. It is intended to supplement the course on the surgical pathology of tumors by Professor Stewart. Twelve hours per week, four weeks, second semester, fourth year. ASST.-PROFESSOR WHITE.

Course VII. Research work in one of the following lines:

(*a*) General pathology. PROFESSOR WESBROOK.

(*b*) Special pathology and bacteriology and technique. ASST.-PROFESSOR WHITE.

Second semester of third and throughout the fourth year, hours assigned.

Course VIII. Surgical pathology.

(See principles of surgery). This course will consist of lectures and laboratory demonstrations and will cover the general subject of the pathological and bacteriological basis of surgery. The lectures will be illustrated by charts and diagrams, by fresh and preserved specimens and, so far as practicable, demonstrations will be given of the various processes of the bacteria concerned. Especial attention will be given to inflammation and its complications, to the infectious diseases of surgical importance and to tumors. Two hours a week, first semester, third year, and 2 hours a week, second semester, fourth year. PROFESSOR STEWART.

Text-Books:

Pathology—

American Text-Book of Pathology.
Ziegler's General and Special Pathology.
Schmaus-Ewing: Pathology and Pathological Anatomy.
Coplin's Manual of Pathology.
Durck-Hektoen: Special Pathologic Histology.
Jakob: Nervous System.
Coat's Manual of Pathology.
Mallory and Wright's Pathological Technique.

Collateral reading—Hamilton's Text-Book of Pathology: Delafield and Prudden's' Handbook of Pathological Anatomy and Histology: Woodhead's Practical Pathology; von Kahlden's Pathological Histology: Thoma's Text-Book of General Pathology: Lubarsch Ostertag, Ergebnisse der Pathologie u Anatomie: Orth, Pathologische Anatomie: Birch-Hirschfield, Pathologische Anatomie: Clifford Allbutt's System of Medicine: Leukhart's die Thierische Parasiten des Menschen: Bouchard, Traite de Pathologie Generale: Eichorst, Pathologie u Therapie: Gaylord and Aschoff, Pathological Histology; Nothnagel, Encyclopedia of Practical Medicine.

Surgical pathology—
Bland Sutton, Tumors, Innocent and Malignant.
Collateral reading—Park's Surgery, Vol. I; Warren's Surgical Pathology, Senn on Tumors; Bowlby's Surgical Pathology: Nancrede's Lectures upon the Principles of Surgery; Watson Cheyne's Tuberculosis of Bones and Joints.
Bacteriology—
Muir and Ritchie's Manual of Bacteriology.
Park, Bacteriology in Medicine and Surgery.
Levy-Klemperer-Eshner Clinical Bacteriology.
Lehmann-Neumann-Weaver, Atlas and Textbook of Bacteriology.
Abbott, The Hygiene of Transmissible Diseases.
Collateral reading—Sternberg's Manual of Bacteriology; Woodhead's Bacteria and their products; Duflocq, Lecons sur les Bacteries Pathogenes; Flugge, die Mikroorganismen; Migula, System de Bakterien; Duclauxs, Traite de Microbiologie; Hueppe (Jordan), Principles of Bacteriology; Novy, Laboratory Work in Bacteriology.

MEDICAL DICTIONARIES.

Gould's Medical Dictionary.
Dunglison's Medical Dictionary.
Duane's Medical Dictionary.
Dorland's Medical Dictionary.

All communications pertaining to the college of homeopathic medicine and surgery should be addressed to the Dean, A. P. Williamson, M. D., No. 602 Nicollet Avenue, Minneapolis, Minn. (Pillsbury Building.)